

**UNITED STATES DISTRICT COURT FOR THE DISTRICT OF MARYLAND  
(Greenbelt Divison)**

MONTGOMERY COUNTY, MARYLAND  
101 Monroe Street  
Rockville, Maryland 20850

Plaintiff,

v.

META PLATFORMS, INC.,  
c/o Corporation Service Company  
300 Deschutes Way SW  
Ste 208 MC-CSC1  
Tumwater, Washington 98501

FACEBOOK HOLDINGS, LLC,  
c/o Corporation Service Company  
251 Little Falls Drive  
Wilmington, Delaware 19808

FACEBOOK OPERATIONS, LLC,  
c/o Corporation Service Company  
251 Little Falls Drive  
Wilmington, Delaware 19808

META PAYMENTS, INC.,  
c/o Corporation Service Company  
300 Deschutes Way SW  
Ste 208 MC-CSC1  
Tumwater, Washington 98501

FACEBOOK TECHNOLOGIES, LLC,  
c/o Corporation Service Company  
300 Deschutes Way SW  
Ste 208 MC-CSC1  
Tumwater, Washington 98501

INSTAGRAM, LLC,  
c/o Corporation Service Company  
251 Little Falls Drive  
Wilmington, Delaware 19808

SICULUS, INC.,  
c/o Corporation Service Company  
251 Little Falls Drive  
Wilmington, Delaware 19808

SNAP INC.,  
c/o Corporation Service Company  
300 Deschutes Way SW

Case No.

Judge:

**COMPLAINT FOR (1) PUBLIC  
NUISANCE; (2) NEGLIGENCE; AND (3)  
GROSS NEGLIGENCE**

**DEMAND FOR A JURY TRIAL**

Ste 208 MC-CSC1  
Tumwater, Washington 98501

TIKTOK INC.,  
c/o Corporation Service Company  
300 Deschutes Way SW  
Ste 208 MC-CSC1  
Tumwater, Washington 98501

BYTEDANCE INC.,  
c/o Corporation Service Company  
300 Deschutes Way SW  
Ste 208 MC-CSC1  
Tumwater, Washington 98501

ALPHABET INC.,  
c/o Corporation Service Company  
251 Little Falls Drive  
Wilmington, Delaware 19808

GOOGLE LLC,  
c/o Corporation Service Company  
300 Deschutes Way SW  
Ste 208 MC-CSC1  
Tumwater, Washington 98501

XXVI HOLDINGS INC.,  
c/o Corporation Service Company  
251 Little Falls Drive  
Wilmington, Delaware 19808

and

YOUTUBE, LLC.  
c/o Corporation Service Company  
251 Little Falls Drive  
Wilmington, Delaware 19808

Defendants.

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## I. INTRODUCTION

1. The proliferation of “social media” products has had an undeniably dramatic impact on minors in Montgomery County and across the United States. By intentionally funneling youths into addictive habits through the continuous use and reliance on their products, these social media conglomerates have achieved breathtaking profits. But those profits come at a significant cost; the addictive behaviors that social media encourages—and, indeed, enables—has caused depression, anxiety, suicidal ideations, eating disorders, suicide attempts, and completed suicide among minors. Defendants knowingly exploited their most vulnerable users—children in Montgomery County and throughout the world—to drive corporate profit.

2. Defendants have intentionally designed their products to maximize users’ screen time, using complex algorithms designed to exploit human psychology and driven by advanced computer algorithms and artificial intelligence available to the largest technology companies in the world. Defendants have progressively modified their products to promote problematic and excessive use that they know threatens the actuation of addictive and self-destructive behavioral patterns.

3. Defendants exploit the weakness of developing minds with continuous dopamine hits, akin to that experienced in a casino, with what is known as the “social-validation feedback loop.” As former Napster founder and Facebook president Sean Parker (“Parker”) explained:

“The thought process that went into building these applications . . . was all about, “How do we consume as much of your time and conscious attention as possible?” To do that, he said, “We need to sort of give you a little dopamine hit every once in a while, because someone liked or commented on a photo or a post or whatever. And that’s going to get you to contribute more content, and that’s going to get you more likes and comments.”<sup>1</sup>

4. These manipulations were deliberately built into the algorithms from the beginning,

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<sup>1</sup> *Chaos Machine* at 25.

as further noted by Parker:

“I mean, it’s exactly the kind of thing that a hacker like myself would come up with because you’re exploiting a vulnerability in human psychology. [chuckles] And I . . . I think that we . . . you know, the inventors, creators, and it’s me, it’s Mark, it’s Kevin Systrom at Instagram. It’s all of these people [who] understood this consciously, and we did it anyway.”<sup>2</sup>

5. Like virtually all communities in the United States, Montgomery County is forced to address a high degree of distraction, depression, suicidality, and other mental disorders suffered by children, caused or worsened by the overconsumption of Defendants social media products on a daily basis, which substantially interferes with Montgomery County’s youth.

## II. JURISDICTION AND VENUE

6. This Court has subject matter jurisdiction over this case under 28 U.S.C. §1332(a) because the amount in controversy exceeds \$75,000 and because Plaintiff and Defendants are residents and citizens of different states.

7. This is a judicial district where Defendants are subject to personal jurisdiction in accordance with 28 U.S.C. §1391 and Md. Courts Jud. Pro. Code Ann. § 6-103, the Maryland long arm statute. Defendants transacted business, performed work and service, caused tortious injury, solicited business, and engaged in a persistent course of conduct within the state of Maryland. The non-resident Defendants regularly engage in business within this District. Defendants have committed tortious acts that have caused injury to the Youth of Montgomery County and thus the County as well. Defendants expect, or should reasonably have expected, those acts to have consequences in the State of Maryland. Moreover, Defendants solicited business within this District, engaged in persistent courses of conduct here, and derived substantial revenue from goods used and services rendered in the State of Maryland.

8. Defendants are regularly engaged in the business of designing, operating, and marketing social network products, either directly or indirectly through third-party related entities,

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<sup>2</sup> *The Social Dilemma* – 2020 Transcript, Scraps from the Loft (Oct. 3, 2020), <https://scrapsfromtheloft.com/movies/the-social-dilemma-movie-transcript/>.

in the State of Maryland.

9. Venue is proper within this District and this Division pursuant to 28 U.S.C. §1391 because a substantial part of the events or omissions giving rise to the claims at issue in this Complaint arose in this District, and Defendants are subject to the Court’s personal jurisdiction with respect to this action.

### **III. THE PARTIES**

#### **A. Plaintiff**

10. Montgomery County, Maryland is entrusted with protecting and governing its residents. It is the most populous county in the State of Maryland, with a population of 1,062,061 people residing within its borders as of the 2020 census.

#### **B. Defendants**

##### **1. Meta**

11. Defendant Meta Platforms, Inc. (“Meta”), formerly known as Facebook, Inc., is a Delaware corporation with its principal place of business in Menlo Park, California. Defendant Meta builds and maintains technologies for social media platforms, communication platforms, and electronic devices that are widely available to users throughout the United States. The platforms developed and maintained by Meta include Facebook (including its self-titled application, Marketplace, and Workplace), Messenger (including Messenger Kids), Instagram, and a line of electronic virtual reality devices and services called Meta Quest (formerly Oculus) (collectively, “Meta platforms” or “Meta products”).

12. Defendant Meta’s subsidiaries include Defendants Facebook Holdings, Facebook Operations, Meta Payments, Facebook Technologies, Siculus (all defined below, and collectively, with Meta, “Facebook”), and Instagram.

13. Defendant Meta’s products, Facebook and Instagram, are among the most popular

social networking sites in the world, with more than 3.6 billion users worldwide.<sup>3</sup>

14. In addition to Meta maintaining its principal place of business within this District, Meta transacts or has transacted business in this District and throughout the United States. At all times material to this Complaint, acting alone or in concert with its subsidiaries, Meta has advertised, marketed, and distributed the Meta products to consumers throughout the United States. At all times material to this Complaint, Meta formulated, directed, controlled, had the authority to control, or participated in the acts and practices set forth in this Complaint.

15. Defendant Meta's subsidiary, Defendant Facebook Holdings, LLC ("Facebook Holdings"), was organized under the laws of the State of Delaware on March 11, 2020 and is a wholly-owned subsidiary of Meta. Facebook Holdings is primarily a holding company for entities involved in Meta's supporting and international endeavors, and its principal place of business is in Menlo Park, California. Defendant Meta is the sole member of Facebook Holdings.

16. Defendant Meta's subsidiary, Defendant Facebook Operations, LLC ("Facebook Operations"), was organized under the laws of the State of Delaware on January 8, 2012 and is wholly owned by Meta. The principal place of business of Facebook Operations is in Menlo Park, California. Defendant Meta is the sole member of Facebook Operations.

17. Defendant Meta's subsidiary, Defendant Meta Payments Inc. ("Meta Payments"), was incorporated in the State of Florida on December 10, 2010 as Facebook Payments Inc. In July 2022, the entity's name was amended to Meta Payments Inc. Meta Payments is a wholly-owned subsidiary of Meta. Meta Payments manages, secures, and processes payments made through Meta, among other activities, and its principal place of business is in Menlo Park, California.

18. Defendant Meta's subsidiary, Defendant Facebook Technologies, LLC ("Facebook

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<sup>3</sup> Felix Richter, *Meta Reaches 3.6 billion People Each Month*, Statista (Oct. 29, 2021), <https://www.statista.com/chart/2183/facebooks-mobile-users/> (last visited June 24, 2023).

Technologies”), was organized under the laws of the State of Delaware as “Oculus VR, LLC” on March 21, 2014 and acquired by Meta on March 25, 2014. Facebook Technologies develops Meta’s virtual and augmented reality technology, such as the Meta Quest line of services, among other technologies related to Meta’s products, and its principal place of business is in Menlo Park, California. Defendant Meta is the sole member of Facebook Technologies.

19. Defendant Meta’s subsidiary, Defendant Instagram, LLC (“Instagram”), was founded by Kevin Systrom and Mike Krieger in October 2010 and is a social media designed for photo and video sharing. In April 2012, Meta purchased the company for approximately \$1 billion. Meta reformed the limited liability company under the laws of the State of Delaware on April 7, 2012, and its principal place of business is in Menlo Park, California. Defendant Meta is the sole member of Instagram.

20. Defendant Meta’s subsidiary, Defendant Siculus, Inc. (“Siculus”), was incorporated in the State of Delaware on October 19, 2011. Siculus is a wholly-owned subsidiary of Meta that supports Meta platforms by constructing data facilities and other projects. Siculus’ principal place of business is in Menlo Park, California.

## **2. Alphabet, Google, and YouTube entities**

21. Defendant Alphabet Inc. (“Alphabet”) is a Delaware corporation with its principal place of business in Mountain View, California. Alphabet is the sole stockholder of XXVI Holdings (defined below).

22. Defendant XXVI Holdings Inc. (“XXVI Holdings”), is a Delaware corporation with its principal place of business in Mountain View, California. XXVI Holdings is a wholly-owned subsidiary of Alphabet and the managing member of Google (defined below).

23. Defendant Google LLC (“Google”) is a limited liability company organized under the laws of the State of Delaware, and its principal place of business is in Mountain View,

California. Google is a wholly-owned subsidiary of XXVI Holdings and the managing member of YouTube, LLC. Google transacts or has transacted business in this District and throughout the United States. At all times material to this Complaint, acting alone or in concert with others, Google has advertised, marketed, and distributed its YouTube video sharing platform to consumers throughout the United States. At all times material to this Complaint, acting alone or in concert with YouTube, LLC, Google formulated, directed, controlled, had the authority to control, or participated in the acts and practices set forth in this Complaint.

24. Defendant YouTube, LLC is a limited liability company organized under the laws of the State of Delaware, and its principal place of business is in San Bruno, California. YouTube, LLC is a wholly owned subsidiary of Google. YouTube, LLC transacts or has transacted business in this District and throughout the United States. At all times material to this Complaint, acting alone or in concert with Defendant Google, YouTube, LLC has advertised, marketed, and distributed its YouTube social media site to consumers throughout the United States. At all times material to this Complaint, acting alone or in concert with Google, YouTube, LLC formulated, directed, controlled, had the authority to control, or participated in the acts and practices set forth in this Complaint.

25. Defendants Alphabet, XXVI Holdings, Google, and YouTube, LLC are hereinafter collectively referred to as “YouTube.”

### **3. Snap Inc.**

26. Defendant Snap Inc. (“Snap”) is a Delaware corporation with its principal place of business in Santa Monica, California. Snap transacts or has transacted business in this District and throughout the United States. At all times material to this Complaint, acting alone or in concert with others, Snap has advertised, marketed, and distributed the Snapchat social media app to consumers throughout the United States. At all times material to this Complaint, Snap formulated,

directed, controlled, had the authority to control, or participated in the acts and practices set forth in this Complaint.

#### **4. TikTok and ByteDance Entities**

27. Defendant TikTok Inc. (“TikTok”) was incorporated in the State of California on April 30, 2015, with its principal place of business in Culver City, California. TikTok Inc. transacts or has transacted business in this District and throughout the United States. At all times material to this Complaint, acting alone or in concert with others, TikTok Inc. has advertised, marketed, and distributed the TikTok Inc. social media site to consumers throughout the United States. At all times material to this Complaint, acting alone or in concert with ByteDance (defined below), TikTok Inc. formulated, directed, controlled, had the authority to control, or participated in the acts and practices set forth in this Complaint.

28. Defendant ByteDance Inc. (“ByteDance”) is a Delaware corporation with its principal place of business in Mountain View, California. ByteDance transacts or has transacted business in this District and throughout the United States. At all times material to this Complaint, acting alone or in concert with others, ByteDance has advertised, marketed, and distributed the TikTok Inc. social media site to consumers throughout the United States. At all times material to this Complaint, acting alone or in concert with TikTok Inc., ByteDance formulated, directed, controlled, had the authority to control, or participated in the acts and practices set forth in this Complaint. TikTok Inc. and ByteDance are hereinafter collectively referred to as “TikTok.”

#### **IV. FACTUAL ALLEGATIONS**

29. The dawn of the social media era is generally considered to be approximately 2006 to 2007, when, on the heels of Yahoo’s failed attempt to acquire Facebook for \$1 billion, Facebook revamped its home page to launch a newsfeed that provided each user with a continuous

personalized feed of what that user’s friends were doing.<sup>4</sup> The newsfeed drove engagement and thus advertising revenue as Facebook membership exploded by 600% to 700%, and suddenly “everyone had total, unblinking visibility into the digital lives of everyone else.” When the newsfeed launched in 2006, 11% of Americans were on social media (between 2% and 4% used Facebook).<sup>5</sup> By fall 2007, Facebook was valued at \$15 billion. By 2014, nearly two-thirds of Americans used social media products, with Facebook and YouTube being nearly universal.

**A. Social Media Addiction Is Prevalent Among America’s Youth**

30. Social Media has been likened to a “casino that fits in your pocket,” training us to answer any dip in our happiness with a pull at the most ubiquitous slot machine in history.”<sup>6</sup> Researchers studying the effect social media has on the brain have shown that social media exploits “the same neural circuitry” as “gambling and recreational drugs to keep consumers using their products as much as possible.” All are addictive because of the neurological chemical dopamine, which is released with the pulsing colorful notification sounds and vibrations associated with a “reward” – for example, a Snapchat with a friend.<sup>7</sup> “But when that dopamine reward system gets hijacked, it can compel you to repeat self-destructive behaviors. To place one more bet, binge on alcohol – or spend hours on apps even when they make you unhappy.”<sup>8</sup>

31. Defendants deliberately designed and marketed exploitative and addictive social media products specifically targeting youth. They have been extremely successful in their efforts. Ninety percent of children aged 13 to 17 use social media. Younger children also regularly use

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<sup>4</sup> *Chaos Machine* at 20-21.

<sup>5</sup> *Chaos Machine* at 23.

<sup>6</sup> *Chaos Machine* at 27.

<sup>7</sup> *Chaos Machine* at 26.

<sup>8</sup> *Id.*

social media.<sup>9</sup> One study reported 38% of children aged 8 to 12 used social media in 2021.<sup>10</sup> Other studies reveal numbers as high as 49% of children aged 10 to 12 use social media and 32% of children aged 7 to 9 use social media.<sup>11</sup>

32. The most popular of these sites is YouTube. A vast majority – 95% – of children aged 13 to 17 have used YouTube.<sup>12</sup>

33. TikTok has skyrocketed in popularity with teenagers since its merger with Musical.ly in 2018. TikTok is now the second most popular social media site, with over 67% of children aged 13 to 17 having used the app.<sup>13</sup>

34. Instagram's numbers are comparable to TikTok, with 62% of children aged 13 to 17 reporting they have used the app.<sup>14</sup>

35. Snapchat also remains popular with youth, with 59% of children aged 13 to 17 reporting they have used the app.<sup>15</sup>

36. Facebook is the fifth most popular social media site, with 32% of children aged 13

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<sup>9</sup> *Social Media and Teens*, Am. Acad. Child & Adolescent Psych. (Mar. 2018), [https://www.aacap.org/AACAP/Families\\_and\\_Youth/Facts\\_for\\_Families/FFF-Guide/Social-Media-and-Teens-100.aspx](https://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/FFF-Guide/Social-Media-and-Teens-100.aspx) (last visited June 24, 2023).

<sup>10</sup> Victoria Rideout et al., *The Common Sense Census: Media Use by Tweens and Teens* at 5, Common Sense Media (2022), [https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web\\_0.pdf](https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf) (last visited June 24, 2023).

<sup>11</sup> *Sharing Too Soon? Children and Social Media Apps*, 39(4) C.S. Mott Child.'s Hosp. Univ. Mich. Health (Oct. 18, 2021), <https://mottpoll.org/reports/sharing-too-soon-children-and-social-media-apps> (last visited June 24, 2023).

<sup>12</sup> Emily A. Vogels et al., *Teens, Social Media and Technology 2022*, Pew Rsch. Ctr. (Aug. 10, 2022), <https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/> (last visited June 24, 2023).

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*

<sup>15</sup> *Id.*

to 17 reporting they have used Facebook's app or website.<sup>16</sup>

37. Teenagers who use these social media products are also likely to use them continuously. One study estimates that 62% of children aged 13 to 18 use social media every day.<sup>17</sup> An increasing number of younger children also use social media daily, with 18% of children aged 8 to 12 reporting using a social media site at least once a day.<sup>18</sup>

38. Daily use for many teenagers does not consist of logging onto a site just once. Rather, many teenage users check social media repeatedly throughout the day. In one study, teenage users reported checking Snapchat 30 times a day on average.<sup>19</sup>

39. Even more alarming, some teenagers never stop looking at social media.<sup>20</sup>

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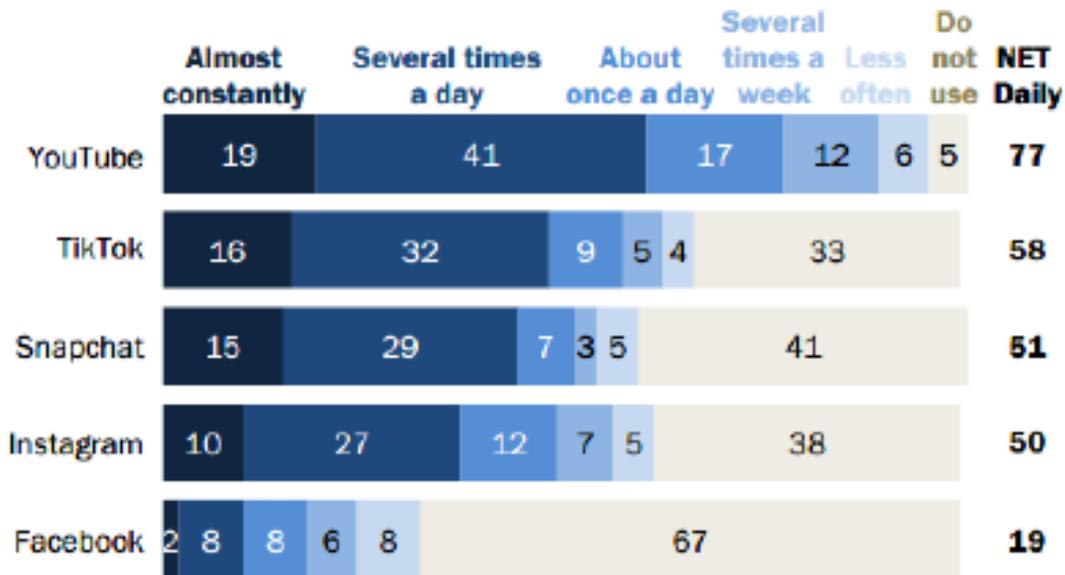
<sup>16</sup> *Id.*

<sup>17</sup> Victoria Rideout et al., *The Common Sense Census: Media Use by Tweens and Teens at 4*, Common Sense Media (2022), [https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web\\_0.pdf](https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf) (last visited June 24, 2023).

<sup>18</sup> *Id.* at 5

<sup>19</sup> Erinn E. Murphy et al., *Taking Stock with Teens: 21 Years of Researching U.S. Teens GenZ Insights* at 13, Piper Sandler (Fall 2021), [https://piper2.bluematrix.com/docs/pdf/3bad99c6-e44a-4424-8fb1-0e3adfcdbd1d4.pdf?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=newsletter\\_axiosam&stream=top](https://piper2.bluematrix.com/docs/pdf/3bad99c6-e44a-4424-8fb1-0e3adfcdbd1d4.pdf?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosam&stream=top). (last visited June 24, 2023).

<sup>20</sup> Victoria Rideout et al., *The Common Sense Census: Media Use by Tweens and Teens at 4*, Common Sense Media (2022), [https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web\\_0.pdf](https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf) (last visited June 24, 2023).



Note: Teens refer to those ages 13 to 17. Those who did not give an answer are not shown. Figures may not add up to the NET values due to rounding. Source: Survey conducted April 14-May 4, 2022. "Teens, Social Media and Technology 2022"

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40. Nearly 32% of teens have declared YouTube the app they would not want to live without almost constantly.<sup>21</sup> Nearly 16% and 15% of teens report that they constantly use TikTok and Snapchat, respectively.<sup>22</sup> Meanwhile, 10% of teens use Instagram almost constantly.<sup>23</sup> Thirty-two percent of teens report using Facebook.<sup>24</sup>

41. Teenagers are aware that social media has a significant hold on their lives, yet they still cannot stop using it. Thirty-six percent of teenagers admit they spend too much time on social media.<sup>25</sup> Over half of teens say that giving up social media would be somewhat hard, with nearly

<sup>21</sup> Emily A. Vogels et al., *Teens, Social Media and Technology 2022*, Pew Rsch. Ctr. (Aug. 10, 2022), <https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/> (last visited June 24, 2023).

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

one in five teens saying giving up social media would be very hard.<sup>26</sup> Of the subgroup of teenagers who use at least one social media product “almost constantly,” 71% said giving up social media would be hard, with 32% saying giving up social media would be very hard.<sup>27</sup>

42. Teenagers report symptoms of addiction disorders with regard to social media. For instance, the more teenagers use social media, the harder it is for them to give it up. Teenagers who acknowledge that they spend too much time on social media are almost twice as likely to say that giving up social media would be difficult as teens who see their social media usage as about right.<sup>28</sup>

43. Despite using social media frequently, most youth do not enjoy it.<sup>29</sup>

**B. Social Media Has Widespread, Harmful, and Often Tragic Effects on Youth Mental Health**

44. The dimensions of the youth mental health crisis are alarming by all accounts. There are many severe and broadly negative effects of social media use on youth mental health. Social media use is linked to increases in mental, emotional, developmental, and behavioral disorders. They include cyberbullying, eating disorders, cutting, depression, anxiety, sleep disorders, vandalism, violence, and suicide-related outcomes. These negative impacts have been demonstrated by both independent research and internal data from the social media giants themselves.

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<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> Victoria Rideout et al., *The Common Sense Census: Media Use by Tweens and Teens* at 34, Common Sense Media (2022), [https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web\\_0.pdf](https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf) (last visited June 24, 2023).

45. In general, electronic screen use causes lower psychological well-being.<sup>30</sup> This link is especially apparent among adolescents. Those with high screen time are twice as likely to receive diagnoses of depression or anxiety or to need treatment for mental or behavioral health conditions compared to low screen time users.<sup>31</sup>

46. Social media specifically has a “detrimental effect on the psychological health of its users.”<sup>32</sup> One systematic review of 16 studies on the effects of social media on mental health found social media use increases levels of anxiety and depression.<sup>33</sup>

47. Social media also has detrimental effects on the mental health of adolescents specifically. High social media use increases depressive symptoms, suicide-related outcomes, and suicide rates among adolescents.<sup>34</sup>

48. The harm to youth from social media use increases with the amount of time spent

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<sup>30</sup> Jean M. Twenge & W. Keith Campbell, *Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study*, 12 *Prev. Med. Rep.* 271-83 (2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6214874/> (last visited June 24, 2023); Ariel Shensa et al., *Social Media Use and Depression and Anxiety Symptoms: A Cluster Analysis*, 42(2) *Am. J. Health Behav.* 116-28 (2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5904786/> (last visited June 24, 2023); *Effects of Social Media on Children*, Cleveland Clinic (Dec. 3, 2021), <https://health.clevelandclinic.org/dangers-of-social-media-for-youth/> (last visited June 24, 2023)

<sup>31</sup> Jean M. Twenge & W. Keith Campbell, *Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study*, 12 *Prev. Med. Rep.* 271-83 (2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6214874/> (last visited June 24, 2023).

<sup>32</sup> Fazida Karim et al., *Social Media Use and Its Connection to Mental Health: A Systemic Review*, 12(6) *Cureus* (June 15, 2020), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7364393/> (last visited June 24, 2023).

<sup>33</sup> *Id.*

<sup>34</sup> Jean M. Twenge et al., *Increases in Depressive Symptoms, Suicide-Related Outcomes, and Suicide Rates Among U.S. Adolescents After 2010 and Links to Increased New Media Screen Time*, 6(1) *Clinical Psych. Sci.* 3-17 (2017), <https://doi.org/10.1177/2167702617723376> (last visited June 24, 2023).

on these sites. One study found that the investment of time in social media by adolescents is linked to higher levels of depression and lower self-esteem.<sup>35</sup> “U.S. teenagers who spend 3 hours a day or more on electronic devices are 35% more likely, and those who spend 5 hours or more are 71% more likely, to have a risk factor for suicide than those who spend less than 1 hour.”<sup>36</sup>

49. One of the primary reasons the use of social media is associated with depressive symptoms among adolescents is that it encourages unhealthy social comparison and feedback-seeking behaviors.<sup>37</sup> Because adolescents spend a majority of their time on social media looking at other users’ profiles and photos, they are likely to engage in negative comparisons with their peers.<sup>38</sup> Specifically, adolescents are likely to engage in harmful upward comparisons with others whom they perceive to be more popular.<sup>39</sup>

50. Through likes and follows, teens are “getting actual data on how much people like them and their appearance,” says Lindsey Giller, a clinical psychologist at the Child Mind Institute

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<sup>35</sup> Corey J. Blomfield Neira & Bonnie L. Barber (2014) *Social networking site use: Linked to adolescents' social self-concept, self-esteem, and depressed mood*, Australian Journal of Psychology, 66:1, 56-64, <https://www.tandfonline.com/doi/full/10.1111/ajpy.12034> (last visited June 24, 2023).

<sup>36</sup> Anne Sheehan, Letter from JANA Partners & CalSTRS to Apple, Inc., *Harvard Law School Forum on Corporate Governance* (Jan. 19, 2018), <https://corpgov.law.harvard.edu/2018/01/19/joint-shareholder-letter-to-apple-inc/> (last visited June 24, 2023) (citing Jean M. Twenge, PhD. *iGen*. New York: Atria Books (an imprint of Simon & Schuster), 2017).

<sup>37</sup> Jacqueline Nesi & Mitchell J Prinstein, *Using Social Media for Social Comparison and Feedback-Seeking: Gender and Popularity Moderate Associations with Depressive Symptoms*, 43(8) *J. Abnormal Child Psych.* 1427-38 (Nov. 2015), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5985443/> (last visited June 24, 2023).

<sup>38</sup> *Id.*; see also Nino Gugushvili et al., *Facebook use intensity and depressive symptoms: a moderated mediation model of problematic Facebook use, age, neuroticism, and extraversion* at 3, *BMC Psych.* 10, 279 (Nov. 28, 2022), <https://doi.org/10.1186/s40359-022-00990-7> (last visited June 24, 2023) (explaining that youth are particularly vulnerable because they “use social networking sites for construing their identity, developing a sense of belonging, and for comparison with others”).

<sup>39</sup> *Id.*

who specializes in youth and young adults with mood disorders.<sup>40</sup> This leads to teens with “anxiety, poor self-esteem, insecurity, and sadness attributed, at least in part, to constant social media use.”<sup>41</sup>

51. Clinicians have also observed a clear relationship between youth social media use and disordered eating behavior.<sup>42</sup> The more social media accounts an adolescent has, the greater disordered eating behaviors they exhibit. Additionally, research shows the more time young girls spend on social media sites, such as Instagram and Snapchat, the more likely they are to develop disordered eating behaviors.<sup>43</sup>

52. Social media has created an environment where self-harm and suicidality is glorified, promoting youth to compete for who can cut the deepest or starve themselves the most.<sup>44</sup> Experts say that sharing pictures of harmful practices encourages others to harm themselves by, in essence, normalizing the behavior.<sup>45</sup>

53. Social media has also caused an increase in cyberbullying. The more time an individual, especially males, spends on social media, the more likely they are to commit acts of

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<sup>40</sup> Leah Shafer, *Social Media and Teen Anxiety*, Harv. Grad. Sch. of Educ., Rsch. Stories (Dec. 15, 2017), <https://www.gse.harvard.edu/news/uk/17/12/social-media-and-teen-anxiety> (last visited June 24, 2023).

<sup>41</sup> *Id.*

<sup>42</sup> Simon M. Wilksch et al., *The relationship between social media use and disordered eating in young adolescents*, 53 *Int'l J. Eating Disorders* 96-106 (2020), <https://pubmed.ncbi.nlm.nih.gov/31797420/> (last visited June 24, 2023).

<sup>43</sup> *Id.*

<sup>44</sup> Cindy Krischer Goodman, *Hiding in plain sight: Inside the online world of suicidal teens anguished, armed and impulsive*, S. Fla. Sun-Sentinel (Jan. 12, 2020), <https://www.sun-sentinel.com/news/florida/fl-ne-teen-suicide-hidden-online-world-20200110-tj767jdoerh4jpw5zaomv26eum-story.html> (last visited June 24, 2023).

<sup>45</sup> Kimberly Leonard, *Is Social Media Making Self-Harm Worse for Teens?*, U.S. News (May 29, 2015), <https://www.usnews.com/news/articles/2015/05/29/is-social-media-making-self-harm-worse-for-teens> (last visited June 24, 2023).

cyberbullying.<sup>46</sup> Cyberbullying is now so common that most American teens, 59%, have experienced some form of the behavior.<sup>47</sup> This number includes: (a) 42% of teens experiencing name calling; (b) 32% being subjected to false rumors; (c) 25% receiving an unsolicited explicit image; (d) 21% being subjected to online stalking; (e) 16% receiving physical threats online; and (f) 7% having had explicit images of them shared without their consent.<sup>48</sup> Exposure to cyberbullying on social media is even more prevalent for youth identifying as LGBTQ, and is linked with increased reporting of depression and suicidality in the LGBTQ youth population.<sup>49</sup>

54. Social media has also played a role in perpetuating youth violence by, for example, amplifying gang communications promoting and calling for violence or promoting fight compilations to millions of viewers. Continual exposure to such violence can have adverse effects on youth. Meta-analyses of the unhealthy effects of media violence have shown that youth who view violent content regularly are more likely to exhibit antisocial behavior, accept violent behavior, and experience increased feelings of hostility.<sup>50</sup>

55. Social media use also contributes to sleep deprivation. Young adults who spend a

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<sup>46</sup> Amanda Giordano et al., *Understanding Adolescent Cyberbullies: Exploring Social Media Addiction and Psychological Factors*, 7(1) J. Child & Adolescent Counseling 42-55 (2021), <https://www.tandfonline.com/doi/abs/10.1080/23727810.2020.1835420?journalCode=ucac20> (last visited June 24, 2023).

<sup>47</sup> Monica Anderson, *A Majority of Teens Have Experienced Some Form of Cyberbullying*, Pew Rsch. Ctr. (Sept. 27, 2018), <https://www.pewresearch.org/internet/2018/09/27/a-majority-of-teens-have-experienced-some-form-of-cyberbullying/> (last visited June 24, 2023).

<sup>48</sup> *Id.*

<sup>49</sup> Cesar G. Escobar-Viera, et al., *For Better or for Worse? A Systematic Review of the Evidence on Social Media Use and Depression Among Lesbian, Gay, and Bisexual Minorities*, JMIR Mental Health (Mar. 23, 2018), <https://mental.jmir.org/2018/3/e10496> (last visited June 24, 2023).

<sup>50</sup> Britany Bostic, *Does Social Media Perpetuate Youth Violence?*, Mich. Youth Violence Prevention Ctr. (Feb. 20, 2014), <https://yvpc.sph.umich.edu/social-media-perpetuate-youth-violence/> (last visited June 24, 2023).

lot of time on social media during the day or check it frequently throughout the week are more likely to suffer sleep disturbances than their peers who use social media infrequently.<sup>51</sup> In turn, disturbed and insufficient sleep is associated with poor health outcomes, such as weight gain and high blood pressure.<sup>52</sup> Sleep deprivation in youth is also linked to depressive symptoms and mood.<sup>53</sup>

56. Teens who spend five or more hours a day on electronic devices are over 50% more likely to experience sleep deprivation than youth who spend less than one hour per day.<sup>54</sup>

57. Defendants exacerbate the disruption of sleep by sending push notifications and emails either at night when children should be sleeping or during school hours when they should be studying, thereby prompting children to reengage with Defendants' products at times when using them is harmful to their health and well-being.<sup>55</sup>

58. Children are especially at risk of developing harmful behaviors because their

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<sup>51</sup> Jessica C. Levenson, et al., *The Association Between Social Media Use and Sleep Disturbance Among Young Adults*, 85 *Preventive Med.* 36-41 (Apr. 2016), <https://www.sciencedirect.com/science/article/abs/pii/S0091743516000025> (last visited June 24, 2023).

<sup>52</sup> *Id.*; see also Jean M. Twenge, PhD, *iGen*. New York: Atria Books (an imprint of Simon & Schuster), 2017

<sup>53</sup> Lynette Vernon, et al., *Tracking Effects of Problematic Social Networking on Adolescent Psychopathy: The Mediating Role of Sleep Disruptions*, *Journal of Clinical Child & Adolescent Psychology* (August 2016), [https://www.researchgate.net/publication/305925717\\_Tracking\\_Effects\\_of\\_Problematic\\_Social\\_Networking\\_on\\_Adolescent\\_Psychopathology\\_The\\_Mediating\\_Role\\_of\\_Sleep\\_Disruptions](https://www.researchgate.net/publication/305925717_Tracking_Effects_of_Problematic_Social_Networking_on_Adolescent_Psychopathology_The_Mediating_Role_of_Sleep_Disruptions) (last visited June 24, 2023).

<sup>54</sup> Ann Sheehan, *Letter from JANA Partners & CalSTRS to Apple, Inc.*, *Harvard Law School Forum on Corporate Governance* (Jan. 19, 2018), <https://corpgov.law.harvard.edu/2018/01/19/joint-shareholder-letter-to-apple-inc/> (last visited June 24, 2023) (citing Jean M. Twenge, PhD, *iGen*. New York: Atria Books (an imprint of Simon & Schuster), 2017).

<sup>55</sup> See, e.g., Beatrice Nolan, *Kids are waking up in the night to check their notifications and are losing about 1 night's worth of sleep a week, study suggests*, *Bus. Insider* (Sept. 19, 2022), <https://www.businessinsider.com/social-media-costing-children-one-night-sleep-study-2022-9> (last visited June 24, 2023) (approximately 12.5% of children report waking up to check social media notifications).

prefrontal cortices are not fully developed.<sup>56</sup> The prefrontal cortex is the part of the brain implicated in planning complex cognitive behavior, expressing one’s personality, making decisions, and moderating social behavior. Consequently, they find it particularly difficult to exercise the self-control required to regulate their own use of Defendants’ products. In this regard, self-regulation allows people to delay gratification, postponing an immediate reward for a better reward later. Adolescents’ undeveloped capacity for self-regulation means they are particularly vulnerable to the immediately pleasurable, but ultimately harmful, effects of the repeated dopamine spikes caused by an external stimulus, such as “likes” that activate the reward system in the brain.<sup>57</sup>

59. These reward-based learning systems “contribute to the maintenance of excessive usage patterns.”<sup>58</sup> Researchers investigating the “directionality between use of social networking [products] and problematic use” have found that “increases in the intensity of use . . . predict[] problematic use.”<sup>59</sup> Empirical studies have found that problematic use is associated with “insomnia, stress, relationship dissatisfaction, anxiety, social anxiety, and depressive symptoms.”<sup>60</sup>

60. In this regard, adolescents are especially vulnerable to long-term harm from Defendants’ products because excessive and problematic use can disrupt their brains’ development at a critical stage.

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<sup>56</sup> Nino Gugushvili et al., *Facebook use intensity and depressive symptoms: a moderated mediation model of problematic Facebook use, age, neuroticism, and extraversion* at 3, *BMC Psych.* 10, 279 (Nov. 28, 2022), <https://doi.org/10.1186/s40359-022-00990-7> (last visited June 24, 2023).

<sup>57</sup> *Id.*

<sup>58</sup> *Id.*

<sup>59</sup> *Id.*

<sup>60</sup> *Id.* (collecting sources).

61. Indeed, studies have shown that the mental health challenges to emotional regulation and well-being caused by social media use continue on into young adulthood. For example, a nationally-representative sample of over 1,700 U.S. emerging adults (defined as aged 18- 29) found that problematic social media use was associated with depressive symptoms in those studied.<sup>61</sup>

**C. America’s Youth Are Facing a Mental Health Crisis**

62. The number of young people using Defendants’ social media products and the intensity with which they use them has increased significantly since 2008, which has contributed to a wide range of negative effects on youth mental health. The incidence of young people experiencing depression, contemplating suicide, seeking emergency room help for mental health issues, and – tragically – committing suicide has soared.

63. On December 7, 2021, these issues led the United States Surgeon General to issue an advisory on the youth mental health crisis.<sup>62</sup> In issuing the advisory, the Surgeon General noted: “Mental health challenges in children, adolescents, and young adults are real and widespread. Even before the pandemic, an alarming number of young people struggled with feelings of helplessness, depression, and thoughts of suicide – and rates have increased over the past decade.”<sup>63</sup>

64. While the report highlights ways in which the COVID-19 pandemic has

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<sup>61</sup> Ariel Shensam MA, et al., *Problematic Social Media Use and Depressive Symptoms among U.S. Young Adults: a Nationally-Representative Study*. Soc Sci Med. (Apr. 24, 2017). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5476225/> (last visited June 24, 2023).

<sup>62</sup> *Protecting Youth Mental Health: The U.S. Surgeon General’s Advisory*, U.S. Dep’t Health & Hum. Servs. (Dec. 7, 2021), <https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf> (last visited June 24, 2023).

<sup>63</sup> Press Release, U.S. Dep’t Health & Hum. Servs., *U.S. Surgeon General Issues Advisory on Youth Mental Health Crisis Further Exposed by COVID-19 Pandemic* (Dec. 7, 2021), <https://www.njsba.org/news-publications/school-board-notes/december-14-2021-vol-xlv-no-18/surgeon-general-warning-mental-health-crisis-for-youths/> (last visited June 24, 2023).

exacerbated mental health issues for American youth, it also highlights the mental health challenges youth faced before the pandemic. Specifically, the report notes that before the pandemic “mental health challenges were the leading cause of disability and poor life outcomes in young people.”<sup>64</sup>

65. Before the pandemic, one in five children in the United States had a mental, emotional, developmental, or behavioral disorder.<sup>65</sup>

66. “In 2021, 42% of high school students felt so sad or hopeless almost every day for at least two weeks in a row that they stopped doing their usual activities.”<sup>66</sup> Female students were more likely than male students to experience these “persistent feelings of sadness or hopelessness.”<sup>67</sup> From 2011 to 2021, the rate of female high school students who reported persistent feelings of sadness or hopelessness increased from 36% to 51% (to one out of every two female children), and the rate of male high school students increased from 21% to 29%.<sup>68</sup>

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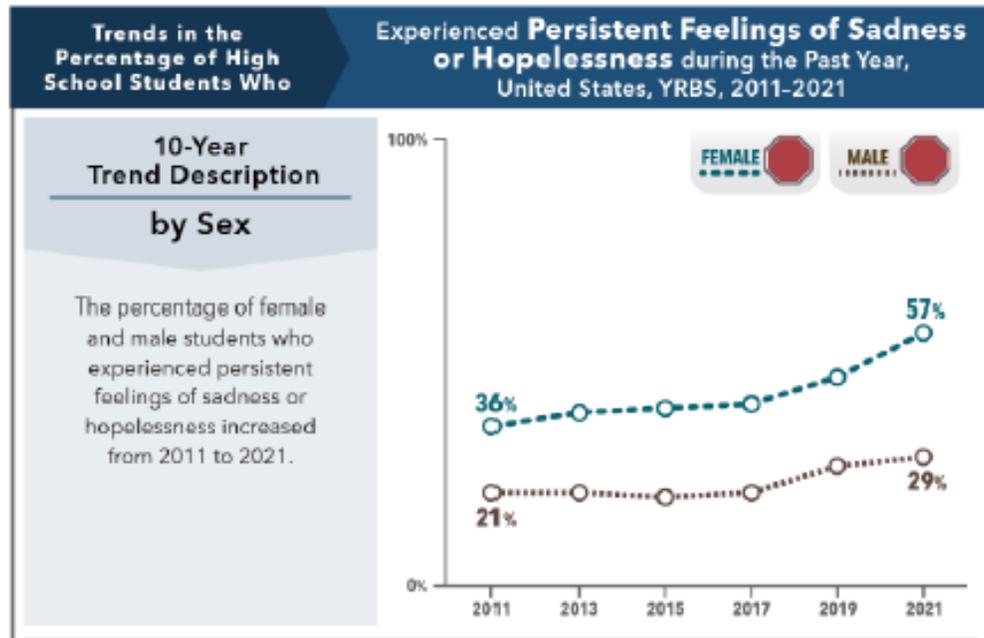
<sup>64</sup> *Protecting Youth Mental Health: The U.S. Surgeon General’s Advisory*, U.S. Dep’t Health & Hum. Servs. (Dec. 7, 2021), <https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf> (last visited June 24, 2023).

<sup>65</sup> *Id.*

<sup>66</sup> *Youth Risk Behavior Survey: Data summary & Trends Report* at 60, CDC (Feb. 13, 2023), [https://www.cdc.gov/healthyyouth/data/yrbs/pdf/YRBS\\_Data-Summary-Trends\\_Report2023\\_508.pdf](https://www.cdc.gov/healthyyouth/data/yrbs/pdf/YRBS_Data-Summary-Trends_Report2023_508.pdf) (last visited June 24, 2023).

<sup>67</sup> *Id.*

<sup>68</sup> *Id.* at 60-66.



67. The share of children seriously considering attempting suicide increased 11% from 2011 to 2021, up to 22% of all high school students. The share who created a suicide plan increased to 18%.<sup>69</sup>

68. From 2007 to 2018, suicide rates among youth aged 10 to 24 in the United States increased by 57%.<sup>70</sup> By 2018, suicide was the second leading cause of death for youth aged 10 to 24.<sup>71</sup>

69. From 2007 to 2016, emergency room visits for youth aged 5 to 17 rose 117% for

<sup>69</sup> Sandy Cohen, Suicide rate highest among teens and youth adults. UCLA Health (Mar. 15, 2022), <https://www.uclahealth.org/news/suicide-rate-highest-among-teens-and-young-adults> (last visited June 24, 2023).

<sup>70</sup> Protecting Youth Mental Health: The U.S. Surgeon General's Advisory, U.S. Dep't Health & Hum. Servs. (Dec. 7, 2021), <https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf> (last visited June 24, 2023).

<sup>71</sup> AAP-AACAP-CHA Declaration of a National Emergency in Child and Adolescent Mental Health, Am. Acad. Pediatrics (Oct. 19, 2021), <https://www.aap.org/en/advocacy/child-and-adolescent-healthy-mental-development/aap-aacap-cha-declaration-of-a-national-emergency-in-child-and-adolescent-mental-health/>. (last visited June 24, 2023).

anxiety disorders, 44% for mood disorders, and 40% for attention disorders.<sup>72</sup>

70. This and other data led the American Academy of Pediatrics, the American Academy of Child and Adolescent Psychiatry, and the Children’s Hospital Association to join the Surgeon General and declare a national emergency in child and adolescent mental health.<sup>73</sup>

71. President Joe Biden also addressed the mental health harms Defendants’ products have caused to youth in his State of the Union address in 2022, noting that youth were struggling from the harms of social media even before the pandemic. He called on all to “hold social media [sites] accountable for the national experiment they’re conducting on our children for profit.”<sup>74</sup>

**D. Social Media Use Has Resulted In Harm to Communities and their Schools**

72. School districts are uniquely harmed by the current youth mental health crisis. This is because schools are one of the main providers for mental health services for school-aged children.<sup>75</sup> Indeed, over 3.1 million children aged 12 to 17 received mental health services through an education setting in 2020, more than any other non-specialty mental health service setting.<sup>76</sup>

73. Most schools must now offer mental health services to students. In the 2021-2022 school year, 96% of public schools reported offering at least one type of mental health service to

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<sup>72</sup> Matt Richtel, *A Teen’s Journey Into the Internet’s Darkness and Back Again*, N.Y. Times (Aug. 22, 2022), <https://www.nytimes.com/2022/08/22/health/adolescents-mental-health-technology.html> (last visited June 24, 2023).

<sup>73</sup> *AAP-AACAP-CHA Declaration of a National Emergency in Child and Adolescent Mental Health*, Am. Acad. Pediatrics (Oct. 19, 2021), <https://www.aap.org/en/advocacy/child-and-adolescent-healthy-mental-development/aap-aacap-cha-declaration-of-a-national-emergency-in-child-and-adolescent-mental-health/> (last visited June 24, 2023).

<sup>74</sup> President Biden, State of the Union Address (Mar. 1, 2022) (transcript available at <https://www.whitehouse.gov/state-of-the-union-2022/>) (last visited June 24, 2023).

<sup>75</sup> National Survey on Drug Use and Health, SAMHSA (see compendium of tables, tables 8.1-8.71 for 1Q20 and 4Q20), <https://www.samhsa.gov/data/report/2020-nsduh-detailed-tables> (last visited June 24, 2023).

<sup>76</sup> *Id.*

their students.<sup>77</sup> However, 88% of public schools did not strongly agree that they could effectively provide mental health services to all students in need.<sup>78</sup> The most common barriers to providing effective mental health services are: (a) insufficient number of mental health professionals; (b) inadequate access to licensed mental health professionals; and (c) inadequate funding.<sup>79</sup> Student opinions also reflect that schools are unable to provide adequate mental health services. Less than a quarter of students in grades 6 through 12 report accessing counseling or psychological services when they are upset, stressed, or having a problem.<sup>80</sup> Of the students who access mental health services, only 41% of middle schoolers and 36% of high schoolers are satisfied with the services they receive.<sup>81</sup>

74. In part, schools are struggling to provide adequate mental health services because of the increase in students seeking these services. More than two-thirds of public schools reported an increase in the percentage of students seeking mental health services from school since the start of the pandemic.<sup>82</sup>

75. During this same period, adolescents increased their social media use, also raising

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<sup>77</sup> *Roughly Half of Public Schools Report That They Can Effectively Provide Mental Health Services to All Students In Need*, Nat'l Ctr. Educ. Stat. (May 31, 2022), [https://nces.ed.gov/whatsnew/press\\_releases/05\\_31\\_2022\\_2.asp](https://nces.ed.gov/whatsnew/press_releases/05_31_2022_2.asp) (last visited June 24, 2023).

<sup>78</sup> *Id.*

<sup>79</sup> *Id.*

<sup>80</sup> *Insights From the Student Experience, Part I: Emotional and Mental Health* at 2, YouthTruth (2022), <https://youthtruthsurvey.org/emh/> (last visited June 24, 2023).

<sup>81</sup> *Id.*

<sup>82</sup> *Roughly Half of Public Schools Report That They Can Effectively Provide Mental Health Services to All Students In Need*, Nat'l Ctr. Educ. Stat. (May 31, 2022), [https://nces.ed.gov/whatsnew/press\\_releases/05\\_31\\_2022\\_2.asp](https://nces.ed.gov/whatsnew/press_releases/05_31_2022_2.asp) (last visited June 24, 2023).

levels of excessive and problematic use of digital media.<sup>83</sup> These higher rates of social media use are related to increased rates of “ill-being.”<sup>84</sup> Thus, the increase in adolescent social media use during the pandemic has caused an increase in adolescents experiencing mental health problems.

76. That relationship is reflected in reports from public schools. Over 75% of public schools reported an increase in staff expressing concerns about student depression, anxiety, and other disturbances since the start of the pandemic.<sup>85</sup> Students receiving mental health services in educational settings predominantly do so because they “[f]elt depressed,” “[t]hought about killing [themselves] or tried to,” or “[f]elt very afraid and tense.”<sup>86</sup>

77. Anxiety disorders are also up, affecting 31.9% of adolescents between the ages of 13 and 18.<sup>87</sup> “Research shows that untreated teenagers with anxiety disorders are at higher risk to perform poorly in school, miss out on important social experiences, and engage in substance abuse.”<sup>88</sup>

78. Schools are struggling not only to provide students with mental health services but also to deliver an adequate education because of the youth mental health crisis. Students in grades

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<sup>83</sup> *Laura Marciano et al., Digital Media Use and Adolescents’ Mental Health During the Covid-19 Pandemic: A Systematic Review and Meta-Analysis*, *Frontiers Pub. Health* (Feb. 1, 2022), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8848548/> (last visited June 24, 2023).

<sup>84</sup> *Id.*

<sup>85</sup> *Roughly Half of Public Schools Report That They Can Effectively Provide Mental Health Services to All Students In Need*, *Nat’l Ctr. Educ. Stat.* (May 31, 2022), [https://nces.ed.gov/whatsnew/press\\_releases/05\\_31\\_2022\\_2.asp](https://nces.ed.gov/whatsnew/press_releases/05_31_2022_2.asp) (last visited June 24, 2023).

<sup>86</sup> Rachel N. Lipari et al., *Adolescent Mental Health Service Use and Reasons for Using Services in Specialty, Educational, and General Medical Settings*, SAMHSA (May 5, 2016), [https://www.samhsa.gov/data/sites/default/files/report\\_1973/ShortReport-1973.html#:~:text=The percent20Substance percent20Abuse percent20and percent20Mental,273 percent20TALK percent20\(8255\)](https://www.samhsa.gov/data/sites/default/files/report_1973/ShortReport-1973.html#:~:text=The percent20Substance percent20Abuse percent20and percent20Mental,273 percent20TALK percent20(8255)) (last visited June 24, 2023).

<sup>87</sup> *Anxiety Disorders: Facts and Statistics*, *Anxiety & Depression Ass’n Am.*, <https://adaa.org/understanding-anxiety/facts-statistics> (last visited June 24, 2023).

<sup>88</sup> *Id.*

6 through 12 identify depression, stress, and anxiety as the most prevalent obstacles to learning.<sup>89</sup> Most middle school and high school students also fail to get enough sleep on school nights, which contributes to poor academic performance.<sup>90</sup> These negative mental health outcomes are also the most common symptoms of excessive social media use.

79. The youth mental health crisis has also caused a wide range of other behavioral issues among students that interfere with schools' ability to teach. In 2022, 61% of public schools saw an increase in classroom disruptions from student misconduct compared to school years before the pandemic.<sup>91</sup> Fifty-eight percent of public schools also saw an increase in rowdiness outside of the classroom, 68% saw increases in tardiness, 27% saw increases in students skipping classes, 55% saw increases in the use of electronic devices when not permitted, 37% saw an increase in bullying, 39% saw an increase in physical fights between students, and 46% saw an increase in threats of fights between students.<sup>92</sup>

80. Further exacerbating schools' struggles to teach is the fact that students are not showing up to school. Indeed, student absenteeism has greatly increased. In the 2021-2022 school year, 39% of public schools experienced an increase in chronic student absenteeism compared to the 2020-2021 school year, and 72% of public schools saw increased chronic student absenteeism compared to school years before the pandemic.<sup>93</sup> Following suit, vandalism has increased in 2022,

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<sup>89</sup> *Insights From the Student Experience, Part I: Emotional and Mental Health* at 2-3, YouthTruth (2022), [https://youthtruthsurvey.org/wp-content/uploads/2022/10/YouthTruth\\_EMH\\_102622.pdf](https://youthtruthsurvey.org/wp-content/uploads/2022/10/YouthTruth_EMH_102622.pdf) (last visited June 24, 2023).

<sup>90</sup> Anne G. Wheaton et al., *Short Sleep Duration Among Middle School and High School Students-United States*, 2015, 67(3) *Morbidity & Mortality Wkly. Rpt.* 85-90 (Jan. 26, 2018), <http://dx.doi.org/10.15585/mmwr.mm6703a1> (last visited June 24, 2023).

<sup>91</sup> *2022 School Pulse Panel*, U.S. Dep't Educ., Inst. Educ. Sci. (2022) (collecting information), <https://ies.ed.gov/schoolsurvey/spp/> (last visited June 24, 2023).

<sup>92</sup> *Id.*

<sup>93</sup> *Id.*

with 36% of public schools reporting increased acts of student vandalism on school property.<sup>94</sup>

81. To account for the greatly increasing struggles faced by schools, Montgomery County and other counties across the country have borne increased costs and expenses in response to the youth mental health crisis. These costs include:

- a. hiring additional mental health personnel (41% of public schools added staff to focus on student mental health);<sup>95</sup>
- b. developing additional mental health resources (46% of public schools created or expanded mental health programs for students; 27% added student classes on social, emotional, and mental health; and 25% offered guest speakers for students on mental health);<sup>96</sup>
- c. training teachers to help students with their mental health (56% of public schools offered professional development to teachers on helping students with mental health);<sup>97</sup>
- d. increasing disciplinary services and hiring additional personnel for disciplinary services in response to increased bullying and harassment over social media;
- e. addressing property damaged as a result of students acting out because of mental, social, and emotional problems caused by Defendants' conduct;
- f. diverting time and resources from instructional activities to notify parents and guardians of students' behavioral issues and attendance;
- g. investigating and responding to threats made against schools and students over social media;
- h. updating student handbooks to address use of Defendants' products; and
- i. updating school policies to address use of Defendants' products.

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<sup>94</sup> *Id.*

<sup>95</sup> *Id.*

<sup>96</sup> *Id.*

<sup>97</sup> President Biden, State of the Union Address (Mar. 1, 2022) (transcript available at <https://www.whitehouse.gov/state-of-the-union-2022/>) (last visited June 24, 2023).

**E. Defendants Intentionally Design, Operate, and Market Their Social Media Sites for Youth Users**

82. Like the cigarette industry a generation earlier, Defendants understand that a child user today becomes an adult user tomorrow. Defendants' insatiable appetite for growth has created a need for younger and younger users. This mental health crisis among America's youth is the result of Defendants' actions to design and market their social media sites in such a way as to encourage youth addiction to their sites.

83. Defendants each maintain and operate social media sites. The interactive features Defendants provide on their sites are similar in many respects. For example, Facebook, Instagram, Snap, TikTok, and YouTube all offer tailored "feeds" of content curated by complex algorithms intended to learn a user's interests and ways to publicly express affirmation for such curated content through "likes," comments, and sharing or reposting the content, which lead to dopamine spikes, which in turn encourage addiction. These methods are so effective in promoting use that Defendants are known to copy the designs and features of one another.<sup>98</sup> The salient features of each of Defendants' social media sites are described in more detail below.

84. Defendants profit from their social media sites by using them as advertising platforms. Defendants collect data on their youth users' viewing habits and behaviors and use that data to drive youth user engagement by deluging them with salacious content designed to keep them on the sites longer and maximize ad revenue. Advertisers pay a premium to target advertisements to specific categories of users, including youth.

85. Defendants view youth, adolescent, and even preadolescent users as among their most valuable commodities. Youth users are central to Defendants' business model as they are

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<sup>98</sup> See, e.g., Kevin Hurler, For Sites Like Instagram and Twitter, Imitation Is the Only Form of Flattery, Gizmodo (Aug. 16, 2022), <https://gizmodo.com/instagram-tiktok-snapchat-facebook-meta-1849395419> (last visited June 24, 2023).

more likely than adults to use social media. Indeed, 95% of children aged 13 to 17 have cell phones,<sup>99</sup> 90% use social media,<sup>100</sup> and 28% buy products and services through social media.<sup>101</sup>

86. To profit from these young users, Defendants intentionally market their products to youths and adolescents. For children under 13, the Children’s Online Privacy Protection Act of 1998 (“COPPA”)<sup>102</sup> regulates the conditions under which Defendants’ products can collect and use their information.

87. COPPA requires social media sites that either target children under age 13 or have actual knowledge of users under age 13 to obtain “verifiable parental consent” prior to collecting and using information about them.<sup>103</sup> Defendants have blatantly violated COPPA or turned a blind eye to younger users on their sites by leaving users to self-report their age. More recently, Defendants embarked on a bolder strategy and sought to capture preadolescent audiences by offering “kid versions” of their products that, while not collecting and using their information, are reportedly “designed to fuel [children’s] interest in the grown-up version.”<sup>104</sup>

88. To maximize revenue, Defendants have intentionally designed and operated their

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<sup>99</sup> Emily A. Vogels et al., *Teens, Social Media and Technology 2022*, Pew Rsch. Ctr. (Aug. 10, 2022), <https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/> (last visited June 24, 2023).

<sup>100</sup> *Social Media and Teens*, Am. Acad. Child & Adolescent Psychiatry (Mar. 2018), [https://www.aacap.org/AACAP/Families\\_and\\_Youth/Facts\\_for\\_Families/FFF-Guide/Social-Media-and-Teens-100.aspx](https://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/FFF-Guide/Social-Media-and-Teens-100.aspx) (last visited June 24, 2023).

<sup>101</sup> Erinn E. Murphy et al., *Taking Stock with Teens: 21 Years of Researching U.S. Teens GenZ Insights at 13*, Piper Sandler (Fall 2021), [https://piper2.bluematrix.com/docs/pdf/3bad99c6-e44a-4424-8fb1-0e3adfcdb1d4.pdf?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=newsletter\\_axiosam&stream=top](https://piper2.bluematrix.com/docs/pdf/3bad99c6-e44a-4424-8fb1-0e3adfcdb1d4.pdf?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosam&stream=top) (last visited June 24, 2023).

<sup>102</sup> See 15 U.S.C. §§6501-6506.

<sup>103</sup> *Id.*

<sup>104</sup> Leonard Sax, *Is TikTok Dangerous for Teens?*, Inst. for Fam. Stud. (Mar. 29, 2022), <https://ifstudies.org/blog/is-tiktok-dangerous-for-teens-> (last visited June 24, 2023).

sites to maximize users’ screen time. Defendants have done so by building features and operating their sites in a manner intended to exploit human psychology using complex algorithms driven by advanced artificial intelligence (“AI”) and machine-learning systems. As stated by Catheryn O’Neil, Ph.D., Harvard mathematician and data scientist, “algorithms are opinions embedded in code . . . algorithms are not objective. Algorithms are optimized to some definition of success. So, if you can imagine, if . . . a commercial enterprise builds an algorithm to their definition of success, it’s a commercial interest. It’s usually profit.”<sup>105</sup> In this regard, in the name of profit, Defendants have progressively modified their products in ways that promote excessive and problematic use and have done so in ways known to be harmful to children.

89. One way Defendants maximize the time users spend on their sites involves the design of feeds – whether of photos, videos, or sponsored or promoted content. Each uses algorithms to serve users personalized content for them to consume ad nauseam. Google’s former design ethicist, Tristan Harris (“Harris”), explained that this never-ending stream is designed to “keep [users] scrolling, and purposely eliminate any reason for [them] to pause, reconsider or leave.”<sup>106</sup> Defendants’ feeds take “an experience that was bounded and finite, and turn it into a bottomless flow that keeps going.”<sup>107</sup> This “flow state,” as psychologists describe it, “fully immerse[s]” users, distorts their perception of time, and “has been shown to be associated with problematic use of social networking sites.”<sup>108</sup> As Harris further states:

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<sup>105</sup> *The Social Dilemma – 2020 Transcript*, Scraps from the Loft (Oct. 3, 2020), <https://scrapsfromtheloft.com/movies/the-social-dilemma-movie-transcript/> (last visited June 24, 2023).

<sup>106</sup> Von Tristan Harris, *The Slot Machine in Your Pocket*, Spiegel Int’l (July 27, 2016), <https://www.spiegel.de/international/zeitgeist/smartphone-addiction-is-part-of-the-design-a-1104237.html> (last visited June 24, 2023).

<sup>107</sup> *Id.*

<sup>108</sup> Nino Gugushvili et al., *Facebook use intensity and depressive symptoms: a moderated mediation model of problematic Facebook use, age, neuroticism, and extraversion* at 3, BMC

[W]e’ve moved away from having a tools-based technology environment to an addiction- and manipulation-based technology environment. . . . Social media isn’t a tool that’s just waiting to be used. It has its own goals, and it has its own means of pursuing them by using your psychology against you.<sup>109</sup>

90. A second way social media conglomerates manipulate users, particularly young ones, is through social reciprocity. “Reciprocity,” from a psychology perspective, refers to the powerful social phenomenon of how people respond to positive or, conversely, hostile actions. Reciprocity means that in response to friendly actions, people respond in a friendly manner and vice versa.<sup>110</sup> Phillip Kunz (“Kunz”) best illustrated the automatic nature of reciprocity through his Christmas card experiment. In the experiment, Kunz sent a group of complete strangers holiday cards with pictures of his family and included a brief note.<sup>111</sup> Those people, whom he had never met or communicated with before, reciprocated, flooding him with holiday cards.<sup>112</sup> The majority of the responses did not even ask Kunz who he was.<sup>113</sup> They simply responded to his initial gesture with a reciprocal action.

91. Reciprocity is why Facebook and Snapchat automatically tell a “sender when you ‘saw’ their message, instead of letting you avoid disclosing whether you read it. As a consequence,

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Psych. 10, 279 (Nov. 28, 2022), <https://doi.org/10.1186/s40359-022-00990-7> (last visited June 24, 2023).

<sup>109</sup> *The Social Dilemma – 2020 Transcript*, Scraps from the Loft (Oct. 3, 2020), <https://scrapsfromtheloft.com/movies/the-social-dilemma-movie-transcript/> (last visited June 24, 2023).

<sup>110</sup> Ernst Fehr & Simon Gächter, *Fairness and Retaliation: The Economics of Reciprocity*, 14(3) J. Econ. Persps. 159-81 (Mar. 2000), [https://www.researchgate.net/profile/Ernst-Fehr-2/publication/23756527\\_Fairness\\_and\\_Retaliation\\_The\\_Economics\\_of\\_Reciprocity/links/5eb024e945851592d6b87d3b/Fairness-and-Retaliation-The-Economics-of-Reciprocity.pdf](https://www.researchgate.net/profile/Ernst-Fehr-2/publication/23756527_Fairness_and_Retaliation_The_Economics_of_Reciprocity/links/5eb024e945851592d6b87d3b/Fairness-and-Retaliation-The-Economics-of-Reciprocity.pdf) (last visited June 24, 2023).

<sup>111</sup> Phillip R. Kunz & Michael Woolcott, *Season’s Greetings: From my status to yours*, 5(3) Soc. Sci. Rsch. 269-78 (Sept. 1976), [https://doi.org/10.1016/0049-089X\(76\)90003-X](https://doi.org/10.1016/0049-089X(76)90003-X) (last visited June 24, 2023).

<sup>112</sup> *Id.*

<sup>113</sup> *Id.*

you feel more obligated to respond” immediately.<sup>114</sup> That keeps users on the site longer. Another tactic, push notifications, make users feel psychologically compelled to return to the site.

92. A third way Defendants manipulate users to keep using or coming back to their sites is through the use of intermittent variable rewards (“IVRs”). Slot machines are a frequent example of how IVRs work.<sup>115</sup> Users pull a lever to win a prize. With each pull, the user may or may not win a prize (i.e., an intermittent reward that varies in value).

93. IVRs work by spacing out dopamine triggering stimuli with dopamine gaps, allowing for anticipation and craving to develop, which strengthens the desire to engage in the activity with each release of dopamine.

94. Defendants bake IVRs into the design and operations of their respective sites by “link[ing] a user’s action (like pulling a lever) with a variable reward.”<sup>116</sup> For example, when “we swipe down our finger to scroll the Instagram feed, we’re playing a slot machine to see what photo comes next.”<sup>117</sup> Facebook also delays the time it takes to load the feed. “This is because without that three-second delay, Instagram wouldn’t feel variable.”<sup>118</sup> Without that delay, there would be no time for users’ anticipation to build. In slot machine terms, there would be “no sense of will I

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<sup>114</sup> Von Tristan Harris, *The Slot Machine in Your Pocket*, Spiegel Int’l (July 27, 2016), <https://www.spiegel.de/international/zeitgeist/smartphone-addiction-is-part-of-the-design-a-1104237.html> (last visited June 24, 2023).

<sup>115</sup> See, e.g., Julian Morgans, *The Secret Ways Social Media is Built for Addiction*, Vice (May 17, 2017), <https://www.vice.com/en/article/vv5jkb/the-secret-ways-social-media-is-built-for-addiction> (last visited June 24, 2023).

<sup>116</sup> Von Tristan Harris, *The Slot Machine in Your Pocket*, Spiegel Int’l (July 27, 2016), <https://www.spiegel.de/international/zeitgeist/smartphone-addiction-is-part-of-the-design-a-1104237.html> (last visited June 24, 2023).

<sup>117</sup> *Id.*

<sup>118</sup> Julian Morgans, *The Secret Ways Social Media is Built for Addiction*, Vice (May 17, 2017), <https://www.vice.com/en/article/vv5jkb/the-secret-ways-social-media-is-built-for-addiction> (last visited June 24, 2023).

win? because you'd know instantly. So the delay isn't the app loading. It's the cogs spinning on the slot machine."<sup>119</sup> Each of Defendants' products exploit this biochemical reaction among its users, typically using "likes," "hearts," or other forms of approval that serve as the reward.

95. Youth are especially vulnerable both to the ways in which Defendants manipulate users to maximize their "watch time" and to the resulting harms. Children's brains undergo a fundamental shift around age 10 that makes "preteens extra sensitive to attention and admiration from others."<sup>120</sup> Consequently, Defendants' use of IVRs, reciprocity, and other "rewards" to maximize the time users spend on their sites exploits a vulnerability unique to youth. This "extra sensitivity" also puts them at greater risk. As Tristan Harris, Google's former design ethicist acknowledged: "Everyone innately responds to social approval, but some demographics, in particular teenagers, are more vulnerable to it than others."<sup>121</sup>

96. In adolescence, the structures of the brain that are "closely tied" to social media activity and that drive instinctual behavior begin to change.<sup>122</sup> The ventral striatum is one of those structures. It receives a rush of dopamine and oxytocin, known as the "happy hormones," whenever we experience social rewards.<sup>123</sup> Between the ages of 10 and 12, the receptors for those happy hormones begin to multiply in this region of the brain, which makes compliments on a new

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<sup>119</sup> *Id.* (emphasis in original)

<sup>120</sup> Zara Abrams, Why young brains are especially vulnerable to social media, *Am. Psych. Ass'n* (Aug. 25, 2022), <https://www.apa.org/news/apa/2022/social-media-children-teens> (last visited June 24, 2023).

<sup>121</sup> Von Tristan Harris, The Slot Machine in Your Pocket, *Spiegel Int'l* (July 27, 2016), <https://www.spiegel.de/international/zeitgeist/smartphone-addiction-is-part-of-the-design-a-1104237.html> (last visited June 24, 2023).

<sup>122</sup> *Id.*

<sup>123</sup> *Id.*

hairstyle, laughter from a classmate, or other social rewards “start to feel a lot more satisfying.”<sup>124</sup>

97. Historically, these biological changes incentivized children and teens to develop healthy social skills and connections. “But arriving at school in a new pair of designer jeans, hoping your crush will smile at you in the hallway, is worlds away from posting a video on TikTok that may get thousands of views and likes,” according to Mitch Prinstein (“Prinstein”), Chief Science Officer for the American Psychology Association.<sup>125</sup>

98. Part of what makes the “interactions so different” is that they are often permanent and public in nature.<sup>126</sup> There is no public ledger tracking the number of consecutive days you have spoken to someone like there is for Snap “streaks.” Similarly, “[a]fter you walk away from a regular conversation, you don’t know if the other person liked it, or if anyone else liked it.”<sup>127</sup> Conversely, on Defendants’ sites, children, their friends, and even complete strangers can publicly deliver or withhold social rewards in the form of likes, comments, views, and follows.<sup>128</sup>

99. These social rewards release dopamine and oxytocin into the brains of youth and adults; but there are two key differences, as Prinstein explained: “First, adults tend to have a fixed sense of self that relies less on feedback from peers. Second, adults have a more mature prefrontal cortex, an area that can help regulate emotional responses to social rewards.”<sup>129</sup>

100. Adolescents, by contrast, are in a “period of personal and social identity formation,”

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<sup>124</sup> *Id.*

<sup>125</sup> Zara Abrams, Why young brains are especially vulnerable to social media, *Am. Psych. Ass’n* (Aug. 25, 2022), <https://www.apa.org/news/apa/2022/social-media-children-teens> (last visited June 24, 2023).

<sup>126</sup> *Id.*

<sup>127</sup> *Id.*

<sup>128</sup> *Id.*

<sup>129</sup> *Id.*

much of which “is now reliant on social media.”<sup>130</sup> “Due to their limited capacity for self-regulation and their vulnerability to peer pressure,” adolescents “are at greater risk of developing mental disorder.”<sup>131</sup>

101. Together, Defendants have designed, refined, marketed, and operated their social media sites to maximize the number of youths who use their sites and the time they spend on those sites by feeding them ever more salacious and often harmful content in ways designed to be addictive. Despite having knowledge of the harm social media causes youth, Defendants have continued to create more sophisticated versions of their products promoting ever more harmful content. Defendants’ conduct in designing and marketing exploitative and manipulative products has resulted in youth spending excessive amounts of time with ever more harmful content on Defendants’ sites.

102. Defendants’ efforts have proven wildly successful. The majority of teenagers feverishly use the same five social media sites: YouTube, TikTok, Instagram, Snapchat, and Facebook.<sup>132</sup> Each of these sites individually boasts high numbers of teenage users.

#### **F. Defendants Consistently Refer To and Treat Their Apps as Products**

103. Each Defendant characterizes and treats their various apps as mass-produced, mass-marketed products that each of the Defendants designs, tests, researches, builds, ships, markets,

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<sup>130</sup>Betul Keles et al., *A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents*, Int’l J. Adolescence & Youth (2019) 25:1, 79-93 (Mar. 3, 2019), [https://www.researchgate.net/publication/331947590;\\_A\\_systematic\\_review\\_the\\_influence\\_of\\_social\\_media\\_on\\_depression\\_anxiety\\_and\\_psychological\\_distress\\_in\\_adolescents/fulltext/5c94432345851506d7223822/A-systematic-review-the-influence-of-social-media-on-depression-anxiety-and-psychological-distress-in-adolescents.pdf](https://www.researchgate.net/publication/331947590;_A_systematic_review_the_influence_of_social_media_on_depression_anxiety_and_psychological_distress_in_adolescents/fulltext/5c94432345851506d7223822/A-systematic-review-the-influence-of-social-media-on-depression-anxiety-and-psychological-distress-in-adolescents.pdf) (last visited June 24, 2023).

<sup>131</sup> *Id.*

<sup>132</sup> Emily A. Vogels et al., *Teens, Social Media and Technology 2022*, Pew Rsch. Ctr. (Aug. 10, 2022), <https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/> (last visited June 24, 2023).

and makes widely available in the stream of commerce for personal use by consumers, including youth.

104. For example, Defendants routinely characterize their social media platforms as products in their regulatory filings and communications with the financial markets and investors. In its 2022 Annual Report, Meta stated that “[t]he term ‘Family’ refers to our Facebook, Instagram, Messenger, and WhatsApp products,” and that “there are inherent challenges in measuring usage of our products across large online and mobile populations.”<sup>133</sup> Similarly, in its 2015 Annual Report, Google stated that its “core products such as ... YouTube... each have over one billion monthly active users.”<sup>134</sup> Likewise, in its 2022 Annual Report, Snap explains that its “flagship product, Snapchat, is a visual messaging application.”<sup>135</sup>

105. Defendants likewise routinely describe their apps as products in statements to public officials and users. In testimony to the Senate Commerce and Judiciary Committees, Mark Zuckerberg stated that Facebook’s “controls are not just to make people feel safe; it’s actually what people want in the product.”<sup>136</sup> He noted that Facebook “want[s] our products to be valuable

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<sup>133</sup> Meta, 2022 Annual Report 3-4 (Feb. 2, 2023), <https://investor.fb.com/financials/default.aspx> (last visited June 24, 2023).

<sup>134</sup> Google, 2015 Annual Report 2 (Feb. 11, 2016), <https://www.sec.gov/Archives/edgar/data/1288776/000165204416000012/goog10-k2015.htm> (last visited June 24, 2023).

<sup>135</sup> Snap, Inc., Snap, Inc. 2022 Annual Report 10 (Jan. 31, 2023), <https://investor.snap.com/financials/Annual-Report/default.aspx> (last visited June 24, 2023); see also Snap Inc., Investor Letter Q3 2022 2 (Oct 20, 2022), [https://s25.q4cdn.com/442043304/files/doc\\_financials/2022/q3/Snap-Inc.-Q3-2022-Investor-Letter-\(10.20.2022\).pdf](https://s25.q4cdn.com/442043304/files/doc_financials/2022/q3/Snap-Inc.-Q3-2022-Investor-Letter-(10.20.2022).pdf) (last visited June 24, 2023), (“Our team remains focused on expanding product offering and deepening engagement with our global community”).

<sup>136</sup> Bloomberg Government, Transcript of Mark Zuckerberg’s Senate Hearing, Washington Post (Apr. 10, 2018), <https://www.washingtonpost.com/news/the-switch/wp/2018/04/10/transcript-of-mark-zuckerbergs-senate-hearing/> (last visited June 24, 2023).

to people.”<sup>137</sup> And he stated that, “fundamentally, at our core, [Meta is] a technology company where the main thing that we do is have engineers and build products.”<sup>138</sup>

106. The other Defendants have made similar statements. In written testimony to the Senate Commerce Committee, a ByteDance witness referred to the “variety of tools and controls we have built into the product.”<sup>139</sup> YouTube executives have used similar language. In written testimony to the Senate Commerce Committee, one YouTube witness noted that consultants “work closely with the product teams to ensure that product design reflects an understanding of children’s unique needs.”<sup>140</sup> And in written testimony to the Senate Committee on Homeland Security and Governmental Affairs, YouTube’s Chief Product Officer stated that “responsibility is our top priority at YouTube and informs every product and policy decision we make.”<sup>141</sup>

107. Defendants understand that, when they are developing their apps, they are building, testing, doing quality control on, and modifying their “products.” For instance, in a 2013 earnings call, one Meta employee noted, “We will continue to focus our development efforts to build products that drive engagement for people of all ages.”<sup>142</sup>

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<sup>137</sup> *Id.*

<sup>138</sup> *Id.*

<sup>139</sup> Protecting Kids Online: Snapchat, TikTok, and Youtube: Hearing Before the Subcomm. on Consumer Protection, Product Safety, and Data Security of the S. Comm. On Commerce, Science, and Transportation (Oct. 26, 2022), <https://www.commerce.senate.gov/2021/10/protecting-kids-online-snapchat-tiktok-and-youtube> (last visited June 24, 2023).

<sup>140</sup> *Id.*

<sup>141</sup> Social Media’s Impact on Homeland Security, Part II: Hearing Before the S. Comm. On Homeland Security and Governmental Affairs (Sept. 14, 2022) (written testimony of Neal Mohan, Chief Product Officer, YouTube and SVP, Google), <https://www.hsg> (last visited June 24, 2023).

<sup>142</sup> Facebook, Facebook Q3 2013 Earnings Call, Zuckerberg Transcripts 236 (Oct. 20, 2013), [https://epublications.marquette.edu/zuckerberg\\_files\\_transcripts/236](https://epublications.marquette.edu/zuckerberg_files_transcripts/236) (last visited June 24, 2023).

108. Other companies operate similarly. In a blog post, Snap referred to its “rebuild” of the Snapchat “Android product.”<sup>143</sup> YouTube asked its users for “Your Help to Test New Product Features,” saying the “main goal of this study is to test new product features to better understand your needs.”<sup>144</sup>

109. Defendants treat their apps as products in customer research, branding, marketing, and growth discussions. In text messages with Kevin Systrom in 2012, Zuckerberg noted, “I’m really excited about what we can do to grow Instagram as an independent brand and product.”<sup>145</sup>

110. Google has been equally candid in referring to YouTube as a “product,” publishing an anniversary post entitled, “A Look Back as We Move Forward: YouTube Product Launches in 2011.”<sup>146</sup>

## **G. Facebook and Instagram Have Substantially Contributed to the Youth Mental Health Crisis**

### **1. Facebook**

111. Facebook is a social networking site owned by Meta.

112. Facebook was founded in 2004 and has become the largest social network in the world. As of October 2021, Facebook had approximately 2.9 billion monthly active users,

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<sup>143</sup> Snap Newsroom, Restructuring and Refocusing our Business (Sept. 11, 2022) Restructuring and Refocusing our Business.

<sup>144</sup> YouTube Official Blog, We Need Your Help to Test New Product Features, <https://blog.youtube/news-and-events/look-back-as-we-move-forward-youtube/> (last visited June 24, 2023)

<sup>145</sup> *The Zuckerberg Files*, the Zuckerberg transcripts, [https://epublications.marquette.edu/zuckerberg\\_files\\_transcripts?utm\\_source=epublications.marquette.edu%2Fzuckerberg\\_files\\_transcripts%2F1330&utm\\_medium=PDF&utm\\_campaign=PDFCoverPages](https://epublications.marquette.edu/zuckerberg_files_transcripts?utm_source=epublications.marquette.edu%2Fzuckerberg_files_transcripts%2F1330&utm_medium=PDF&utm_campaign=PDFCoverPages) (last visited June 24, 2023).

<sup>146</sup> YouTube Official Blog, A Look Back as We Move Forward: YouTube Product Launches in 2011 (Jan. 23, 2012), <https://blog.youtube/news-and-events/look-back-as-we-move-forward-youtube/> (last visited June 24, 2023).

approximately 2 billion of whom use Facebook every day.<sup>147</sup>

113. When Facebook was founded in 2004, only students at certain colleges and universities could use the social media site, and verification of college enrollment was required to access Facebook.

114. In 2005, Facebook expanded and became accessible to students at more universities around the world, after which Facebook launched a high school version that also required an invitation to join.

115. Facebook later expanded eligibility to employees of several companies, including Apple and Microsoft, and also added more universities to its network.

116. In September 2006, Facebook became available to all internet users. At the time, Facebook claimed that it was open only to persons aged 13 and older with a valid email address; however, on information and belief, Facebook did not in fact require verification of a user's age or identity and did not actually verify users' email addresses, such that underage users could easily register an account with and access Facebook.

117. Facebook then underwent a series of changes aimed at increasing user engagement and growth, without regard to user safety, including the following changes:

- a. In 2009, Facebook launched the "like" button;
- b. In 2011, Facebook launched Messenger, its direct messaging service, and started allowing people to subscribe to non-friends;
- c. In 2012, Facebook started showing advertisements in its newsfeed and launched a real-time bidding system through which advertisers could bid on users based on their visits to third-party websites;
- d. In 2014, Facebook's facial recognition algorithm (DeepFace) reached near-human

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<sup>147</sup> See *id.*; Stacy Jo Dixon, *Number of Daily Active Facebook Users Worldwide as of 4th Quarter 2022* (in Millions), Statista (Feb. 13, 2023), <https://www.statista.com/statistics/346167/facebook-global-dau/> (last visited June 24, 2023).

accuracy in identifying faces;

- e. In 2015, Facebook made significant changes to its newsfeed algorithm to determine what content to show users and launched its live-streaming service;
- f. In 2016, Facebook launched games for its social media site so that users could play games without having to install new apps; and
- g. In 2017, Facebook launched Facebook Creator, an app for mobile video posts that assists with content creation.

## 2. Instagram

118. Instagram is a social media site that launched in 2010, which Meta acquired for \$1 billion in April 2012.

119. Instagram enables users to share photos and videos with other users and view other users' photos and videos. These photos and videos appear on users' Instagram "feeds," which are virtually bottomless, scrollable lists of content.

120. After being acquired by Meta, Instagram experienced exponential user growth, expanding from approximately ten million monthly active users in September 2012 to more than one billion monthly active users worldwide today, including approximately 160 million users in the United States.<sup>148</sup>

121. Instagram's user growth was driven by design and development changes to the Instagram algorithm that increased engagement at the expense of the health and well-being of Instagram's users – especially the children using the site.

122. For example, in August 2020, Instagram began hosting and recommending short

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<sup>148</sup> Stacy Jo Dixon, *Number of Instagram Users Worldwide from 2020 to 2025* (in Billions), Statista (Feb. 15, 2023), <https://www.statista.com/statistics/183585/instagram-number-of-global-users/> (last visited June 24, 2023).

videos to users, called Reels.<sup>149</sup> Like TikTok, Instagram allows users to view an endless feed of Reels that are recommended and curated to users by Instagram’s algorithm.

123. Instagram has become the most popular photo-sharing social media site among children in the United States – approximately 72% of children aged 13 to 17 in the United States use Instagram.<sup>150</sup>

### **3. Facebook and Instagram Design and Market Their Sites to Appeal to a Youth Audience**

124. Facebook and Instagram have expended significant effort to attract youth, including teens and preteens, to their sites, including designing features that appeal to them. They do this to maximize the revenue generated from relationships with advertisers and also because they view teenagers as a way to attract other potential users, such as by using teenagers to recruit parents who want to participate in their children’s lives, as well as younger siblings who look to older siblings as models for which social media sites to use and how to use them.<sup>151</sup>

125. Facebook and Instagram explicitly target teenagers. An internal Instagram marketing plan reveals that it knows “[i]f we lose the teen foothold in the U.S. we lose the pipeline” for growth.<sup>152</sup> To ensure that did not happen, Instagram devoted almost all of its \$390 million annual marketing budget for 2018 to target teenagers.<sup>153</sup>

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<sup>149</sup> *Introducing Instagram Reels*, Instagram (Aug. 5, 2020), <https://about.instagram.com/blog/announcements/introducing-instagram-reels-announcement> (last visited June 24, 2023).

<sup>150</sup> Katherine Schaeffer, *7 Facts About Americans and Instagram*, Pew Rsch. Ctr. (Oct. 7, 2021), <https://www.pewresearch.org/fact-tank/2021/10/07/7-facts-about-americans-and-instagram/> (last visited June 24, 2023).

<sup>151</sup> Sheera Frenkel et al., *Instagram Struggles with Fears of Losing Its ‘Pipeline’: Young Users*, N.Y. Times (Oct. 26, 2021), <https://www.nytimes.com/2021/10/16/technology/instagram-teens.html> (last visited June 24, 2023).

<sup>152</sup> *Id.*

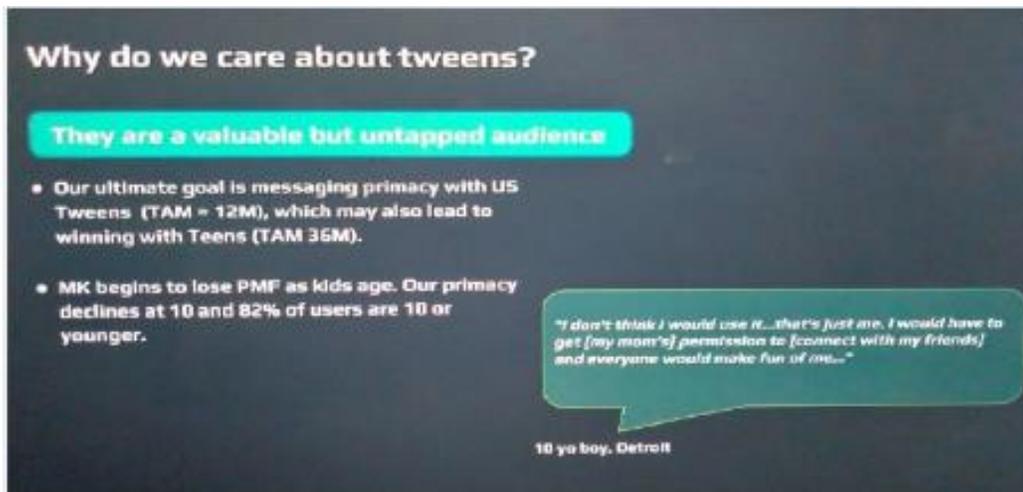
<sup>153</sup> *Id.*

126. Facebook also views preteens or “tweens” as a “valuable but untapped audience,” even contemplating “exploring playdates as a growth lever.”<sup>154</sup> Facebook formed a team to study preteens, endeavored to create more products designed for them, and commissioned strategy papers regarding the “business opportunities” created.<sup>155</sup>



<sup>154</sup> Georgia Wells & Jeff Horwitz, *Facebook’s Effort to Attract Preteens Goes Beyond Instagram Kids, Documents Show; It has investigated how to engage young users in response to competition from Snapchat, TikTok; ‘Exploring playdates as a growth lever,’* Wall St. J. (Sept. 28, 2021), <https://www.wsj.com/articles/facebook-instagram-kids-tweens-attract-11632849667> (last visited June 24, 2023).

<sup>155</sup> *Id.*



127. For these reasons, Facebook and Instagram are designed to be used by children and are actively marketed to children throughout their markets in the United States. Facebook and Instagram both advertise to children through their own efforts, as well as through advertisers that create and target advertisements to children. Internal company documents establish that Facebook spends hundreds of millions of dollars researching, analyzing, and marketing to children to find ways to make its sites more appealing to these age groups and to maximize the time they spend on its sites as these age groups are seen as essential to Facebook’s long-term profitability and market dominance.<sup>156</sup> For instance, after Instagram’s founders left in September 2018, “Facebook went all out to turn Instagram into a main attraction for young audiences” and “began concentrating on the ‘teen time spent’ data point” in order to “drive up the amount of time that teenagers were on the app with features including Instagram Live, a broadcasting tool, and Instagram TV, where people upload videos that run as long as an hour.”<sup>157</sup>

128. Similarly, Instagram’s popularity among young people is the result of its deliberate

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<sup>156</sup> *Id.*

<sup>157</sup> Sheera Frenkel et al., Instagram Struggles with Fears of Losing Its ‘Pipeline’: Young Users, N.Y. Times (Oct. 26, 2021), <https://www.nytimes.com/2021/10/16/technology/instagram-teens.html> (last visited June 24, 2023).

efforts to target children, which in turn is driven by the desire of advertisers and marketers to target children on Facebook and Instagram. In fact, Facebook’s acquisition of Instagram was primarily motivated by its desire to make up for declines in the use of Facebook by children and its view of Instagram as central to its ability to attract and retain young audiences. A 2018 internal Facebook marketing report is indicative of this, lamenting the loss of teenage users to competitors’ sites as “an ‘existential threat.’”<sup>158</sup> In contrast, a Facebook presentation from 2019 indicated that “Instagram is well positioned to resonate and win with young people,” and “[t]here is a path to growth if Instagram can continue their trajectory.”<sup>159</sup>

129. With respect to preteens, Facebook’s policy is that they cannot register an account on either Facebook or Instagram, but it knowingly lacks effective age-verification protocols. Since at least 2011, Facebook has known that its age-verification protocols are largely inadequate.<sup>160</sup> In 2021, Adam Mosseri, the executive in charge of Instagram, acknowledged users under 13 can still “lie about [their] age now” to register an account.<sup>161</sup>

130. Facebook has yet to implement protocols to verify a user’s age, presumably because

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<sup>158</sup> *Id.*

<sup>159</sup> Georgia Wells et al., *Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show; Its own in-depth research shows a significant teen mental-health issue that Facebook plays down in public*, Wall St. J. (Sept. 14, 2021), <https://www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739> (last visited June 24, 2023).

<sup>160</sup> Austin Carr, *Facebook Booting “20,000” Underage Users Per Day: Reaction to Growing Privacy Concerns?*, Fast Co. (Mar. 22, 2011), <https://www.fastcompany.com/1741875/facebook-booting-20000-underage-users-day-reaction-growing-privacy-concerns> (last visited June 24, 2023).

<sup>161</sup> Georgia Wells & Jeff Horwitz, *Facebook’s Effort to Attract Preteens Goes Beyond Instagram Kids, Documents Show; It has investigated how to engage young users in response to competition from Snapchat, TikTok; ‘Exploring playdates as a growth lever,’* Wall St. J. (Sept. 28, 2021), <https://www.wsj.com/articles/facebook-instagram-kids-tweens-attract-11632849667> (last visited June 24, 2023).

it has strong business incentives not to do so or to laxly enforce its policy. Facebook also has agreements with cell phone manufacturers and/or providers and/or retailers, who often preinstall its apps on mobile devices prior to sale without regard to the age of the intended user of each such device. That is, even though Facebook is prohibited from providing its products to users under the age of 13, Facebook actively promotes and provides underage users access to its sites by encouraging and allowing cell phone manufacturers to preinstall the sites on mobile devices indiscriminately. Consequently, in a recent Pew Research study, approximately 11% of United States parents of children between the ages of 9 and 11 said their children used Instagram in 2020.<sup>162</sup>

131. Facebook's efforts to attract young users have been successful. In a recent study, 62% of children aged 13 to 17 reported they have used Instagram's app, and 32% of children aged 13 to 17 reported they have used Facebook's app or website.<sup>163</sup>

#### **4. Facebook and Instagram Intentionally Design Exploitative Features Aimed at Keeping Users on the Sites for as Long as Possible**

132. The Facebook sites are designed to maximize user engagement, using features that exploit the natural human desire for social interaction and the neurophysiology of the brain's reward systems to keep users endlessly scrolling, posting, "liking," commenting, and counting the number of "likes" and comments to their own posts. The developing brains of children are particularly vulnerable to such exploitation.

133. One of the ways in which Facebook and Instagram employ IVRs is through its push

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<sup>162</sup> Brooke Auxier et al., *Parenting Children in the Age of Screens*, Pew Rsch. Ctr. (July 28, 2020), <https://www.pewresearch.org/internet/2020/07/28/childrens-engagement-with-digital-devices-screen-time/> (last visited June 24, 2023).

<sup>163</sup> Heather Kelly, Teens have fled Facebook but are loyal to YouTube, poll shows, Wash. Post (Aug. 10, 2022), <https://www.washingtonpost.com/technology/2022/08/10/teens-social-pew/> (last visited June 24, 2023).

notifications and emails, which encourage habitual use and are designed to prompt users to open and be exposed to content selected to maximize the use of Facebook’s products and the ads run on them. In particular, Facebook and Instagram space out notifications of likes and comments into multiple bursts rather than notifying users in real time so as to create dopamine gaps that leave users craving in anticipation for more. In this regard, Facebook’s push notifications and emails are specifically designed to manipulate users into reengaging with Facebook products to increase user engagement regardless of a user’s health or well-being.

134. Facebook also exploits IVRs to manipulate users with one of its most defining features: the “Like” button. Facebook knows “Likes” are a source of social comparison harm for many users as detailed below. Several Facebook employees involved in creating the Like button have since left Facebook and have spoken publicly about the manipulative nature of Facebook products and the harm they cause users.<sup>164</sup>

135. Additionally, Facebook designed other features of its sites on principles of IVRs, such as posts, comments, tagging, and the “pull to refresh” feature (which is similar to the way that slot machines work).

136. Other design decisions were motivated by reciprocity, such as the use of visual cues to reflect that someone is currently writing a message (a feature designed to keep a user on the site until they receive the message) and alerting users when a recipient has read their message (which encourages the recipient to respond and return to the site to check for a response).

137. Facebook and Instagram are designed to encourage users to post content and to like, comment, and interact with other users’ posts. Each new post that appears on a user’s feed

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<sup>164</sup> See, e.g., Paul Lewis, *‘Our minds can be hijacked’: the tech insiders who fear a smartphone dystopia*, Guardian (Oct. 6, 2017), <https://www.theguardian.com/technology/2017/oct/05/smartphone-addiction-silicon-valley-dystopia> (last visited June 24, 2023).

functions as a dopamine-producing social interaction in the user’s brain. Similarly, likes, comments, and other interactions with users’ posts function as an even stronger dopamine-producing stimulus than does seeing new posts from other users. This in turn drives users to generate content they expect will generate many likes and comments. In this regard, Facebook has designed its products to function in concert as popular content posted by other users psychologically compels users to post similar content themselves, trapping users – especially youth - in endless cycles of “little dopamine loops.”<sup>165</sup>

### **5. Facebook’s and Instagram’s Algorithms Are Manipulative and Harmful**

138. Facebook and Instagram also employ advanced computer algorithms and AI to make the sites as engaging and habit forming as possible for users. For example, Facebook and Instagram display curated content and employ recommendations that are customized to each user by using sophisticated algorithms. The proprietary services developed through such algorithms include Facebook’s Feed (a newsfeed of stories and posts published on the site, some of which are posted by connections and others that are suggested by Facebook’s algorithms), People You May Know (algorithm-based suggestions of persons with common connections or background), Suggested for You, Groups You Should Join, and Discover (algorithm-based recommendations of groups). Such algorithm-based content and recommendations are pushed to each user in a steady stream as the user navigates the site, as well as through notifications sent to the user’s smartphone and email addresses when the user is disengaged with the site.

139. These algorithms are not based exclusively on user requests or even user inputs. The algorithms combine information entered or posted by the user on the site with the user’s

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<sup>165</sup> Allison Slater Tate, *Facebook whistleblower Frances Haugen says parents make 1 big mistake with social media*, Today (Feb. 7, 2022), <https://www.today.com/parents/teens/facebook-whistleblower-frances-haugen-rcna15256> (last visited June 24, 2023).

demographics and other data points collected and synthesized by Facebook, make assumptions about that user's interests and preferences, make predictions about what else might appeal to the user, and then make very specific recommendations of posts and pages to view and groups to visit and join based on rankings that will optimize Facebook's key performance indicators. In this regard, Facebook's design dictates the way content is presented, such as its ranking and prioritization.<sup>166</sup>

140. Facebook's and Instagram's current use of algorithms in their products is driven and designed to maximize user engagement. Over time, Facebook and Instagram have gradually transitioned away from chronological ranking, which organized the interfaces according to when content was posted or sent, to prioritize Meaningful Social Interactions ("MSI"), which emphasizes users' connections and interactions such as likes and comments and gives greater significance to the interactions of connections that appeared to be the closest to users. Facebook thus developed and employed an "amplification algorithm" to execute engagement-based ranking, which considers a post's likes, shares, and comments, as well as a respective user's past interactions with similar content, and exhibits the post in the user's newsfeed if it otherwise meets certain benchmarks.

141. Facebook's algorithms covertly operate on the principle that intense reactions invariably compel attention. Because these algorithms measure reactions and contemporaneously immerse users in the most reactive content, these algorithms effectively work to steer users toward the most negative content because negative content routinely elicits passionate reactions.

142. Due to its focus on user engagement, Facebook's algorithms promote content that

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<sup>166</sup> See, e.g., Adam Mosseri, *Shedding More Light on How Instagram Works*, Instagram (June 8, 2021), <https://about.instagram.com/blog/announcements/shedding-more-light-on-how-instagram-works> (last visited June 24, 2023).

is objectionable and harmful to many users. As set forth in greater detail below, Facebook was well aware of the harmful content it was promoting but failed to change its algorithms because the inflammatory content its algorithms were feeding to users fueled their return to the sites and led to more engagement, which in turn helped Facebook and Instagram sell more advertisements that generate most of their revenue. As such, Facebook's algorithms promote harmful content because such content increases user engagement, which thereby increases its appeal to advertisers and increases its overall value and profitability.

143. Facebook's and Instagram's shift from chronological ranking to algorithm-driven content and recommendations has changed the sites in ways that are profoundly dangerous and harmful to children, whose psychological susceptibility to habit-forming products put them at great risk of harm from the sites' exploitative and harmful features. In this regard, the algorithms used by these products exploit child users' diminished decision-making capacity, impulse control, emotional maturity, and psychological resiliency caused by users' incomplete brain development, and Facebook and Instagram specifically design their products with these vulnerabilities in mind.

## **6. Facebook and Instagram "Feeds" Are Designed to Enable Users to Scroll Endlessly**

144. Both Facebook and Instagram show each user a "feed" that is generated by an algorithm for that user, which consists of a series of photos and videos posted by accounts that the user follows, along with advertising and content specifically selected and promoted by the company.

145. These feeds are virtually bottomless lists of content that enable users to scroll endlessly without any natural end points that would otherwise encourage them to move on to other activities. In this regard, "[u]nlike a magazine, television show, or video game," the Facebook and

Instagram sites only rarely prompt their users to take a break by using “stopping cues.”<sup>167</sup> The “bottomless scrolling” feature is designed to encourages users to use its products for unlimited periods of time.

146. Facebook and Instagram also exert control over a user’s feed through certain ranking mechanisms, escalation loops, and promotion of advertising and content specifically selected and promoted based on, among other things, its ongoing planning, assessment, and prioritization of the types of information most likely to increase user engagement.

147. As described above, the algorithms generating a user’s feed encourage excessive use and promote harmful content, particularly where the algorithm is designed to prioritize the number of interactions rather than the quality of interactions.

148. In this regard, Facebook and Instagram use private information of their child users to “precisely target [them] with content and recommendations, assessing . . . what will provoke a reaction,” including encouragement of “destructive and dangerous behaviors,” which is how they “can push teens into darker and darker places.”<sup>168</sup> As such, Facebook’s “amplification algorithms, things like engagement based ranking . . . can lead children . . . all the way from just something innocent like healthy recipes to anorexia promoting content over a very short period of time.”<sup>169</sup> Facebook and Instagram thus specifically select and push this harmful content on their sites, for

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<sup>167</sup> See Zara Abrams, *How Can We Minimize Instagram’s Harmful Effects?; Psychologists’ research has shown that Instagram use is associated both with beneficial and detrimental effects – depending on how it’s used*, Am. Psych. Ass’n (Dec. 2, 2021), <https://www.apa.org/monitor/2022/03/feature-minimize-instagram-effects> (last visited June 24, 2023).

<sup>168</sup> See *Facebook Whistleblower Frances Haugen Testifies on Children & Social Media Use: Full Senate Hearing Transcript* at 09:02, Rev (Oct. 5, 2021), <https://www.rev.com/blog/transcripts/facebook-whistleblower-frances-haugen-testifies-on-children-social-media-use-full-senate-hearing-transcript> (last visited June 24, 2023). (statement by Chairman Richard Blumenthal).

<sup>169</sup> *Id.* at 37:34 (statement by Frances Haugen (“Haugen”)).

which they are then paid, and do so both for direct profit and also to increase user engagement, resulting in additional profits down the road.

149. As one example, in 2021, Senators Richard Blumenthal, Marsha Blackburn, and Mike Lee tested and confirmed the fact that the Facebook and Instagram products' recommendation-based feeds and features promote harmful content by opening test accounts purporting to be teenage girls. Senator Blumenthal stated: "Within an hour all of our recommendations promoted pro-anorexia and eating disorder content."<sup>170</sup> Likewise, Senator Lee found that an account for a fake 13-year-old girl was quickly "flooded with content about diets, plastic surgery and other damaging material for an adolescent girl."<sup>171</sup>

150. Instagram features a feed of "Stories," which are short-lived photo or video posts that are accessible only for 24 hours. This feature encourages constant, repeated, and compulsive use of Instagram so that users do not miss out on content before it disappears. As with other feeds, the presentation of content in a user's Stories is generated by an algorithm designed by Instagram to maximize the amount of time a user spends on the app.

151. Instagram also features a feed called "Explore," which displays content posted by users not previously "followed." The content in "Explore" is selected and presented by an algorithm designed to maximize the amount of time a user spends on the app. As with other feeds, the Explore feature may be scrolled endlessly; and its algorithm will continually generate new recommendations, encouraging users to use the app for unlimited periods of time.

152. Instagram also features a feed called "Reels," which presents short video posts by

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<sup>170</sup> Vanessa Romo, *4 Takeaways from Senators' Grilling of Instagram's CEO About Kids and Safety*, NPR (Dec. 8, 2021), <https://www.npr.org/2021/12/08/1062576576/instagrams-ceo-adam-mosseri-hears-senators-brush-aside-his-promises-to-self-poli> (last visited June 24, 2023).

<sup>171</sup> *Id.*

users not previously followed. These videos play automatically, without input from the user, encouraging the user to stay on the app for indefinite periods of time. As with other feeds, Reels content is selected and presented by an algorithm designed to maximize the amount of time a user spends on the app.

**7. For Years, Facebook and Instagram Have Been Aware that Their Products Harm Children**

153. Social media sites like Facebook – and Instagram in particular – can cause serious harm to the mental and physical health of children. Moreover, this capacity for harm is by design – what makes these products profitable is precisely what harms its young users.

154. In an internal slide presentation in 2019, Facebook’s own researchers studying Instagram’s effects on children concluded: “We make body image issues worse for one in three teen girls.”<sup>172</sup> This presentation was one of many documents leaked by former employee Haugen to journalists at The Wall Street Journal and federal regulators in 2021.<sup>173</sup> The Wall Street Journal’s reporting on the documents began in September 2021 and caused a national and international uproar.

155. Upon information and belief, at least as far back as 2019, Facebook initiated a

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<sup>172</sup> Georgia Wells et al., *Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show*; Its own in-depth research shows a significant teen mental-health issue that Facebook plays down in public, Wall St. J. (Sept. 14, 2021), <https://www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739> (last visited June 24, 2023).

<sup>173</sup> *The Wall Street Journal* and *Digital Wellbeing* published several of these documents in November 2021. See, e.g., Paul Marsden, The ‘Facebook Files’ on Instagram harms – all leaked slides on a single page, Digit. Wellbeing (Oct. 20, 2021), <https://digitalwellbeing.org/the-facebook-files-on-instagram-harms-all-leaked-slides-on-a-single-page/> (last visited June 24, 2023).. Gizmodo also started publishing these documents in November 2021. See Dell Cameron et al., *Read the Facebook Papers for Yourself; Hundreds of internal documents formed the basis of dozen of news stories. They have not been made public. Until now*, Gizmodo (Feb. 14, 2023), <https://gizmodo.com/facebook-papers-how-to-read-1848702919> (last visited June 24, 2023).

Proactive Incident Response experiment, which began researching the effect of Facebook and Instagram on the mental health of today’s children.<sup>174</sup> Facebook’s own in-depth analyses show significant mental-health issues stemming from the use of Instagram among teenage girls, many of whom linked suicidal thoughts and eating disorders to their experiences on the app.<sup>175</sup> In this regard, the companies’ own researchers have repeatedly found that Instagram is harmful for a sizable percentage of teens who use the site.<sup>176</sup>

156. In particular, the researchers found that “[s]ocial comparison,” or peoples’ assessment of their own value relative to that of others, is “worse on Instagram” for teens than on other social media sites.<sup>177</sup> One in five teens reported that Instagram make[s] “them feel worse about themselves.”<sup>178</sup> Roughly two in five teen users reported feeling “unattractive,” while one in ten teen users reporting suicidal thoughts traced them to Instagram.<sup>179</sup> Teens “consistently” and without prompting blamed Instagram “for increases in the rate of anxiety and depression.”<sup>180</sup> Although teenagers identify Instagram as a source of psychological harm, they often lack the self-control to use Instagram less. Also, according to their own researchers, young users are not capable of controlling their Instagram use to protect their own health.<sup>181</sup> Such users “often feel “addicted”

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<sup>174</sup> See *Facebook Whistleblower Testifies on Protecting Children Online*, C-SPAN (Oct. 5, 2021), <https://www.c-span.org/video/?515042-1/whistleblower-frances-haugen-calls-congress-regulate-facebook> (last visited June 24, 2023).

<sup>175</sup> See Georgia Wells et al., *Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show*, Wall St. J. (Sept. 14, 2021), <https://www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739> (last visited June 24, 2023).

<sup>176</sup> *Id.*

<sup>177</sup> *Id.*

<sup>178</sup> *Id.*

<sup>179</sup> *Id.*

<sup>180</sup> *Id.*

<sup>181</sup> *Id.*

and know that what they're seeing is bad for their mental health but feel unable to stop themselves.”<sup>182</sup>

157. Similarly, in a March 2020 presentation posted to Facebook’s internal message board, researchers found that “[t]hirty-two percent of teen girls said that when they felt bad about their bodies, Instagram made them feel worse.”<sup>183</sup> Sixty-six percent of teen girls and forty-four percent of teen boys have experienced negative social comparison harms on Instagram.<sup>184</sup> Further, approximately 13% of teen girl Instagram users say the platform makes thoughts of suicide and self-harm worse, and 17% of teen girl Instagram users say the platform makes “[e]ating issues” worse.<sup>185</sup> Internal researchers also acknowledged that “[m]ental health outcomes” related to the use of Instagram “can be severe,” including: (i) “Body Dissatisfaction”; (ii) “Body Dysmorphia”; (iii) “Eating Disorders”; (iv) “Loneliness”; and (v) “Depression.”<sup>186</sup>

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<sup>182</sup> *Id.*

<sup>183</sup> *Id.*; see also *Teen Girls Body Image and Social Comparison on Instagram – An Exploratory Study in the U.S.*, Wall St. J. (Sept. 29, 2021), <https://digitalwellbeing.org/wp-content/uploads/2021/10/Facebook-Files-Teen-Girls-Body-Image-and-Social-Comparison-on-Instagram.pdf>; *Hard Life Moments-Mental Health Deep Dive* at 14, Facebook (Nov. 2019), <https://about.fb.com/wp-content/uploads/2021/09/Instagram-Teen-Annotated-Research-Deck-1.pdf> at 14; Paul Marsden, *The ‘Facebook Files’ on Instagram harms – all leaked slides on a single page* at slide 14, Digit. Wellbeing (Oct. 20, 2021), <https://digitalwellbeing.org/the-facebook-files-on-instagram-harms-all-leaked-slides-on-a-single-page> (last visited June 24, 2023) (hard life moment – mental health deep dive).

<sup>184</sup> *Teen Girls Body Image and Social Comparison on Instagram – An Exploratory Study in the U.S.* at slide 9, Wall St. J. (Sept. 29, 2021), <https://digitalwellbeing.org/wp-content/uploads/2021/10/Facebook-Files-Teen-Girls-Body-Image-and-Social-Comparison-on-Instagram.pdf> (last visited June 24, 2023).

<sup>185</sup> *Hard Life Moments-Mental Health Deep Dive* at 14, Facebook (Nov. 2019), <https://about.fb.com/wp-content/uploads/2021/09/Instagram-Teen-Annotated-Research-Deck-1.pdf>; Paul Marsden, *The ‘Facebook Files’ on Instagram harms – all leaked slides on a single page* at slide 14, Digit. Wellbeing (Oct. 20, 2021), <https://digitalwellbeing.org/the-facebook-files-on-instagram-harms-all-leaked-slides-on-a-single-page> (last visited June 24, 2023).

<sup>186</sup> *Teen Girls Body Image and Social Comparison on Instagram – An Exploratory Study in the U.S.* at slide 34, Wall St. J. (Sept. 29, 2021), <https://digitalwellbeing.org/wp-content/uploads/>

158. Not only is Facebook aware of the harmful nature of the Facebook and Instagram sites, the leaked documents reveal that Facebook is aware of the specific design features that lead to excessive use and harm to children. For instance, Facebook and Instagram know that Instagram’s Explore, Feed, and Stories features contribute to social comparison harms “in different ways.”<sup>187</sup> Moreover, specific “[a]spects of Instagram exacerbate each other to create a perfect storm” of harm to users, and the “[s]ocial [c]omparison [s]weet [s]pot” – a place of considerable harm to users, particularly teenagers and teen girls – lies at the center of Meta’s model and features.<sup>188</sup> Internal researchers wrote that “social comparison and perfectionism are nothing new, but young people are dealing with this on an unprecedented scale” and “constant comparison on Instagram is contributing to higher levels of anxiety and depression.”<sup>189</sup>

#### **H. YouTube’s Social Media Site Has Substantially Contributed to the Youth Mental Health Crisis**

159. YouTube is a site where users can post, share, view, and comment on videos related to a vast range of topics. It became available publicly in December 2005 and was acquired by Google in 2006.

160. YouTube reports that it has over 2 billion monthly logged-in users.<sup>190</sup> Even more people use YouTube each month because consumers do not have to register an account to view a video on YouTube. As a result, anyone can view most content on YouTube regardless of age.

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2021/10/Facebook-Files-Teen-Girls-Body-Image-and-Social-Comparison-on-Instagram.pdf (last visited June 24, 2023).

<sup>187</sup> *Id.* at 31.

<sup>188</sup> *Id.* at 33.

<sup>189</sup> See *The Facebook Files, Part 2: ‘We Make Body Image Issues Worse’*, Wall St. J. (Sept. 14, 2021), <https://www.wsj.com/podcasts/the-journal/the-facebook-files-part-2-we-make-body-image-issues-worse/c2c4d7ba-f261-4343-8d18-d4de177cf973> (last visited June 24, 2023).

<sup>190</sup> *YouTube for Press*, YouTube, <https://blog.youtube/press/> (last visited June 24, 2023)

161. Users, whether logged in or not, watch *billions of hours of videos every day*.<sup>191</sup>

162. Users with accounts can post their own videos, comment on others, and, since 2010, express their approval of videos through “likes.”<sup>192</sup>

163. Beginning in 2008 and through today, YouTube has recommended videos to users.<sup>193</sup> Early on, the videos YouTube recommended to users were the most popular videos across the site.<sup>194</sup> YouTube admits “[n]ot a lot of people watched those videos,” at least not based on its recommendation.<sup>195</sup>

164. Since then, YouTube has designed and refined its recommendation system using machine-learning algorithms that today take into account a user’s “likes,” time spent watching a video, and other behaviors to tailor its recommendations to each user.<sup>196</sup>

165. YouTube automatically plays those recommendations for a user after they finish watching a video. This feature, known as “autoplay,” was implemented in 2015. YouTube turns the feature on by default, which means videos automatically and continuously play for users unless they turn it off.<sup>197</sup>

166. YouTube purports to disable by default its autoplay feature for users aged 13 to

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<sup>191</sup> *Id.*

<sup>192</sup> Josh Lowensohn, YouTube’s big redesign goes live to everyone, CNET (Mar. 31, 2010), <https://www.cnet.com/culture/youtubes-big-redesign-goes-live-to-everyone/> (last visited June 24, 2023).

<sup>193</sup> Cristos Goodrow, *On YouTube’s recommendation system*, YouTube (Sept. 15, 2021), <https://blog.youtube/inside-youtube/on-youtubes-recommendation-system/> (last visited June 24, 2023).

<sup>194</sup> *Id.*

<sup>195</sup> *Id.*

<sup>196</sup> *Id.*

<sup>197</sup> *Autoplay videos*, YouTube Help, <https://support.google.com/youtube/answer/6327615?hl=en#:~:text=For%20users%20aged%2013%2D17,turned%20off%20Autoplay%20for%20you> (last visited Feb. 27, 2023) (last visited June 24, 2023).

17.<sup>198</sup> However, as mentioned above, YouTube does not require users to log in or even have an account to watch videos. For them or anyone who does not self-report an age between 13 and 17, YouTube defaults to automatically playing the videos its algorithm recommends to the user.

**1. YouTube Designs and Markets Its Algorithm and Site to Appeal to a Youth Audience**

167. The primary way YouTube makes money is through advertising. It made \$19 billion in advertising revenue in 2021 alone.<sup>199</sup> Consequently, Google has designed YouTube to maximize user engagement, predominantly through the amount of time users spend watching videos.

168. “In 2012, YouTube concluded that the more people watched, the more ads it could run . . . . So YouTube . . . set a company-wide objective to reach one billion hours of viewing a day . . . .”<sup>200</sup>

169. “[T]he best way to keep eyes on the site,” YouTube realized, was “recommending videos, alongside a clip or after one was finished.”<sup>201</sup> That is what led to the development of its recommendation algorithm and autoplay feature described above.

170. YouTube has long known youth use its site in greater proportion than older

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<sup>198</sup> *Id*

<sup>199</sup> Alphabet Inc.’s 2021 Annual Report on SEC Form 10-K at 60 (Feb 1, 2022), <https://www.sec.gov/ix?doc=/Archives/edgar/data/1652044/000165204422000019/goog-20211231.htm> (last visited June 24, 2023).

<sup>200</sup> Mark Bergen, *YouTube Executive Ignores Warnings, Letting Toxic Videos Run Rampant*, Bloomberg (Apr. 2, 2019), <https://www.bloomberg.com/news/features/2019-04-02/youtube-executives-ignored-warnings-letting-toxic-videos-run-rampant?leadSource=verify%20wall> (last visited June 24, 2023).

<sup>201</sup> Mark Bergen, *YouTube Executive Ignores Warnings, Letting Toxic Videos Run Rampant*, Bloomberg (Apr. 2, 2019), <https://www.bloomberg.com/news/features/2019-04-02/youtube-executives-ignored-warnings-letting-toxic-videos-run-rampant?leadSource=verify%20wall> (last visited June 24, 2023).

demographics.

171. However, YouTube has not implemented even rudimentary protocols to verify the age of users. Anyone can watch a video on YouTube without registering an account or reporting their age.

172. Instead, YouTube leveraged its popularity among youth to increase its revenue from advertisements by marketing its site to popular brands of children's products. For example, Google pitched Mattel, the maker of Barbie and other popular children's toys, by telling its executives: "YouTube is today's leader in reaching children age 6-11 against top TV channels."<sup>202</sup> When presenting to Hasbro, the maker of Play-Doh, My Little Pony, and other children's toys, Google touted: "YouTube is unanimously voted as the favorite website of kids 2-12" and "93% of tweens visit YouTube to watch videos."<sup>203</sup> In a different presentation to Hasbro, YouTube was referred to as "[t]he new 'Saturday Morning Cartoons'" and claimed YouTube was the "#1 website regularly visited by kids" and "the #1 source where children discover new toys + games."<sup>204</sup>

173. In addition to turning a blind eye toward underage users of its product, YouTube developed and marketed a version of YouTube specifically for children under the age of 13.

174. YouTube's efforts to attract young users have been successful. A vast majority, 95%, of children aged 13 to 17 have used YouTube.<sup>205</sup>

## **2. YouTube Intentionally Designs Features to Keep Its Users on Its Site for as Long as Possible**

175. Google employs design features and complex algorithms to create a never-ending

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<sup>202</sup> Complaint for Permanent Injunction, Civil Penalties, and Other Equitable Relief, Exhibits A-C, *FTC v. Google LLC et al.*, No. 1-19-cv-02642-BAH, ECF 1-1 (D.D.C. Sept. 4, 2019).

<sup>203</sup> *Id.*

<sup>204</sup> *Id.*

<sup>205</sup> *Id.*

stream of videos intended to grip users' attention.

176. Like the other Defendants' social media products, Google developed features that exploit psychological phenomena such as IVRs to maximize the time users spend on YouTube.

177. YouTube uses design elements that operate on principles of IVRs to drive both YouTube content creators and YouTube viewers into habitual, excessive use. Google designed YouTube to allow users to like, comment, and share videos and to subscribe to content creators' channels. These features serve as rewards for users who create and upload videos to YouTube. As described above, receiving a like indicates others' approval and activates the reward region of the brain.<sup>206</sup> The use of likes therefore encourages users to use YouTube over and over, seeking future pleasurable experiences.

178. YouTube also uses IVRs to encourage users to view others' content. One of the ways Google employs IVRs into YouTube's design is through subscriber push notifications and emails, which are designed to prompt users to watch YouTube content and encourages excessive use of the site. When a user "subscribe[s]" to another user's channel, the subscriber receives notifications every time that user uploads new content, prompting the subscriber to open YouTube and watch the video.<sup>207</sup>

179. One of YouTube's defining features is its panel of recommended videos. YouTube recommends videos to users on both the YouTube home page and on every individual video page

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<sup>206</sup> See, e.g., Lauren E. Sherman et al., *The Power of the Like in Adolescence: Effects of Peer Influence on Neural and Behavioral Responses to Social Media*, 27(7) Psych. Sci. 1027-35 (July 2016), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5387999/> (last visited June 24, 2023).

<sup>207</sup> *Manage YouTube Notifications*, YouTube, <https://support.google.com/youtube/answer/3382248?hl=en&co=GENIE.Platform%3DDesktop> (last visited Feb. 27, 2023) (last visited June 24, 2023).

in an “Up Next” panel.<sup>208</sup> This list automatically populates next to the video a user is currently watching. This recommended video list is a never-ending feed of videos intended to keep users on the app watching videos without having to affirmatively click or search for other videos. This constant video stream, comprised of videos recommended by YouTube’s algorithms, is the primary way Google increases the time users spend on YouTube.

### **3. YouTube’s Algorithms Are Manipulative and Harmful, Especially to a Youth Audience**

180. Google uses complex algorithms throughout YouTube to recommend videos to users. These algorithms select videos that populate the YouTube homepage, rank results in user searches, and suggest videos for viewers to watch next. These algorithms are manipulative because they are designed to increase the amount of time users spend on YouTube.

181. Google began building the YouTube recommendation system in 2008.<sup>209</sup> When Google initially developed its recommendation algorithms, the end goal was to maximize the amount of time users spend watching YouTube videos. A YouTube spokesperson admitted as much, saying YouTube’s recommendation system was initially set up to “optimize” the amount of time users watch videos.<sup>210</sup>

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<sup>208</sup> *Recommended Videos*, YouTube, <https://www.youtube.com/howyoutubeworks/product-features/recommendations/> (last visited June 24, 2023).

<sup>209</sup> Cristos Goodrow, *On YouTube’s recommendation system*, YouTube (Sept. 15, 2021), <https://blog.youtube/inside-youtube/on-youtubes-recommendation-system/> (last visited June 24, 2023).

<sup>209</sup> *Recommended Videos*, YouTube, <https://www.youtube.com/howyoutubeworks/product-features/recommendations/> (last visited Feb. 27, 2023) (last visited June 24, 2023).

<sup>209</sup> Cristos Goodrow, *On YouTube’s recommendation system*, YouTube (Sept. 15, 2021), <https://blog.youtube/inside-youtube/on-youtubes-recommendation> (last visited June 25, 2023)

<sup>210</sup> Ben Popken, *As algorithms take over, YouTube’s recommendations highlight a human problem*, NBC (Apr. 19, 2018), <https://www.nbcnews.com/tech/social-media/algorithms-take-over-youtube-s-recommendations-highlight-human-problem-n867596> (last visited June 24, 2023).

182. Former YouTube engineer Guillaume Chaslot (“Chaslot”) has stated that when he worked for YouTube designing its recommendation algorithm, the priority was to keep viewers on the site for as long as possible to maximize “watch time.”<sup>211</sup> Chaslot further stated: “Increasing users’ watch time is good for YouTube’s business model” because the more people watch videos, the more ads they see, and YouTube’s advertising revenue increases.<sup>212</sup>

183. Early on, one of the primary metrics behind YouTube’s recommendation algorithm was clicks. As YouTube describes: “Clicking on a video provides a strong indication that you will also find it satisfying.”<sup>213</sup> However, as YouTube learned, clicking on a video does not mean a user actually watched it. Thus, in 2012, YouTube also started tracking watch time – the amount of time a user spends watching a video.<sup>214</sup> YouTube made this switch to keep people watching for as long as possible.<sup>215</sup> In YouTube’s own words, this switch was successful. “These changes have so far proved very positive – primarily less clicking, more watching. We saw the amount of time viewers spend watching videos across the site increase immediately . . . .”<sup>216</sup> In 2016, YouTube started

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<sup>211</sup> William Turton, *How YouTube’s algorithm prioritizes conspiracy theories*, Vice (Mar. 5, 2018), <https://www.vice.com/en/article/d3w9ja/how-youtubes-algorithm-prioritizes-conspiracy-theories> (last visited June 24, 2023).

<sup>212</sup> Jesselyn Cook & Sebastian Murdock, *YouTube is a Pedophile’s Paradise*, Huffington Post (Mar. 21, 2020), [https://www.huffpost.com/entry/youtube-pedophile-paradise\\_n\\_5e5d79d1c5b6732f50e6b4db](https://www.huffpost.com/entry/youtube-pedophile-paradise_n_5e5d79d1c5b6732f50e6b4db) (last visited June 24, 2023).

<sup>213</sup> Cristos Goodrow, *On YouTube’s Recommendation System*, YouTube (Sept. 15, 2021), <https://blog.youtube/inside-youtube/on-youtubes-recommendation-system/> (last visited June 24, 2023).

<sup>214</sup> *Id.*

<sup>215</sup> Dave Davies, *How YouTube became one of the planet’s most influential media businesses*, NPR (Sept. 8, 2022), <https://www.npr.org/2022/09/08/1121703368/how-youtube-became-one-of-the-planets-most-influential-media-businesses> (last visited June 24, 2023).

<sup>216</sup> Eric Meyerson, *YouTube Now: Why We Focus on Watch Time*, YouTube (Aug. 10, 2012), <https://blog.youtube/news-and-events/youtube-now-why-we-focus-on-watch-time/> (last visited June 24, 2023).

measuring “valued watchtime” via user surveys to ensure that viewers are satisfied with their time spent watching videos on YouTube.<sup>217</sup> All of these changes to YouTube’s algorithms were made to ensure that users spent more time watching videos and ads.

184. YouTube’s current recommendation algorithm is based on deep-learning neural networks that retune its recommendations based on the data fed into it.<sup>218</sup> While this algorithm is incredibly complex, its process can be broken down into two general steps. First, the algorithm compiles a shortlist of several hundred videos by finding videos that match the topic and other features of the video a user is currently watching.<sup>219</sup> Then the algorithm ranks the list according to the user’s preferences, which the algorithm learns by tracking a user’s clicks, likes, and other interactions.<sup>220</sup> In short, the algorithms track and measure a user’s previous viewing habits and then finds and recommends other videos the algorithm thinks will hold the consumer’s attention.

185. YouTube’s recommendation system is “constantly evolving, learning every day from over 80 billion pieces of information.”<sup>221</sup> Some of the information on which the

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<sup>217</sup> Cristos Goodrow, *On YouTube’s recommendation system*, YouTube (Sept. 15, 2021), <https://blog.youtube/inside-youtube/on-youtubes-recommendation-system/> (last visited June 24, 2023).

<sup>218</sup> Alexis C. Madrigal, *How YouTube’s Algorithm Really Works*, Atl. (Nov. 8, 2018), <https://www.theatlantic.com/technology/archive/2018/11/how-youtubes-algorithm-really-works/575212/>; Paul Covington et al., *Deep Neural Networks for YouTube Recommendations*, Google (2016), <https://storage.googleapis.com/pub-tools-public-publication-data/pdf/45530.pdf> (last visited June 24, 2023).

<sup>219</sup> Karen Hao, *YouTube is experimenting with ways to make its algorithm even more addictive*, MIT Tech. Rev. (Sept. 27, 2019), <https://www.technologyreview.com/2019/09/27/132829/youtube-algorithm-gets-more-addictive/>; Paul Covington et al., *Deep Neural Networks for YouTube Recommendations*, Google (2016), <https://storage.googleapis.com/pub-tools-public-publication-data/pdf/45530.pdf> (last visited June 24, 2023).

<sup>220</sup> *Id.*

<sup>221</sup> Cristos Goodrow, *On YouTube’s Recommendation System*, YouTube (Sept. 15, 2021), <https://blog.youtube/inside-youtube/on-youtubes-recommendation-system/> (last visited June 24, 2023).

recommendation algorithm relies to deliver recommended videos to users includes users' watch and search history, channel subscriptions, clicks, watch time, survey responses, shares, likes, dislikes, users' location (country), and time of day.<sup>222</sup>

186. The recommendation algorithm can determine which "signals" or factors are more important to individual users.<sup>223</sup> For example, if a user shares every video they watch, including videos the user gives a low rating, the algorithm learns not to heavily factor the user's shares when recommending content.<sup>224</sup> Thus, the recommendation algorithm "develops dynamically" to an individual user's viewing habits and makes highly specific recommendations to keep individual users watching videos.<sup>225</sup>

187. In addition to the algorithm's self-learning, Google engineers consistently update YouTube's recommendation and ranking algorithms, making several updates every month, according to YouTube Chief Product Officer Neal Mohan ("Mohan").<sup>226</sup> The end goal is to increase the amount of time users spend watching content on YouTube.

188. Because Google has designed and refined its algorithms to be manipulative, these algorithms are incredibly successful at getting users to view content based on the algorithm's recommendation. Mohan stated in 2018 that YouTube's AI-driven recommendations are

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<sup>222</sup> *Recommended Videos; Signals Used to Recommend Content*, YouTube, <https://www.youtube.com/howyoutubeworks/product-features/recommendations/#signals-used-to-recommend-content> (last visited June 24, 2023).

<sup>223</sup> *Id.*

<sup>224</sup> *Id.*

<sup>225</sup> *Id.*

<sup>226</sup> Nilay Patel, YouTube Chief Product Officer Neal Mohan on The Algorithm, Monetization, and the Future for Creators, *The Verge* (Aug. 3, 2021), <https://www.theverge.com/22606296/youtube-shorts-fund-neal-mohan-decoder-interview> (last visited June 24, 2023).

responsible for 70% of the time users spend on YouTube.<sup>227</sup> In other words, 70% of all YouTube content that users watch was recommended to users by YouTube's algorithms as opposed to users purposely searching for and identifying the content they watch.

189. Mohan also stated that recommendations keep mobile device users watching YouTube for more than 60 minutes at a time on average.<sup>228</sup>

190. Given that people watch more than one billion hours of YouTube videos daily,<sup>229</sup> YouTube's recommendation algorithms are responsible for hundreds of millions of hours that users spend watching videos on YouTube.

#### **4. YouTube's Conduct Has Harmed Youth Mental Health**

191. YouTube's conduct harms youth mental health through its features designed to maximize the amount of time users spend watching videos and by recommending content to youth through its algorithms.

192. YouTube's algorithms push its young users down rabbit holes where they are likely to encounter content that is violent, is sexual, or encourages self-harm, among other types of harmful content.

193. Research by the Tech Transparency Project ("TTP") shows that YouTube Kids fed children content involving drug culture, guns, and beauty and diet tips that could lead to harmful

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<sup>227</sup> Joan E. Solsman, YouTube's AI is the puppet master over most of what you watch, CNET (Jan. 20, 2018), <https://www.cnet.com/tech/services-and-software/youtube-ces-2018-neal-mohan/> (last visited June 24, 2023).

<sup>228</sup> *Id.*

<sup>229</sup> Shira Ovide, The YouTube Rabbit Hole is Nuanced, N.Y. Times (Apr. 21, 2022), <https://www.nytimes.com/2022/04/21/technology/youtube-rabbit-hole.html> (last visited June 24, 2023).

body image issues.<sup>230</sup> Among the videos TTP found were step-by-step instructions on how to conceal a gun, guides on how to bleach one’s face at home, and workout videos emphasizing the importance of burning calories and telling children to “[w]iggle your jiggle.”<sup>231</sup> This research shows that YouTube Kids not only lets inappropriate content slip through its algorithmic filters but actively directed the content to children through its recommendation engine.

194. Similar examples abound. Amanda Kloer, a campaign director with the child safety group ParentsTogether, spent an hour on her child’s YouTube Kids profile and found videos “encouraging kids how to make their shirts sexier, a video in which a little boy pranks a girl over her weight, and a video in which an animated dog pulls objects out of an unconscious animated hippo’s butt.”<sup>232</sup> Another parent recounted that YouTube Kids’ autoplay function led her six-year-old daughter to an animated video that encouraged suicide.<sup>233</sup>

195. Other youth are fed content by YouTube’s algorithms that encourages self-harm. As reported by PBS Newshour, a middle schooler named Olivia compulsively watched YouTube videos every day after she came home from school.<sup>234</sup> Over time she became depressed and started searching for videos on how to commit suicide. Similar videos then gave her the idea of

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<sup>230</sup> Alex Hern, YouTube Kids shows videos promoting drug culture and firearms to toddlers, *Guardian* (May 5, 2022), <https://www.theguardian.com/technology/2022/may/05/youtube-kids-shows-videos-promoting-drug-culture-firearms-toddlers> (last visited June 24, 2023).

<sup>231</sup> *Guns, Drugs, and Skin Bleaching: YouTube Kids Poses Risks to Children, Tech Transparency Project* (May 5, 2022), <https://www.techtransparencyproject.org/articles/guns-drugs-and-skin-bleaching-youtube-kids-still-poses-risks-children> (last visited June 24, 2023).

<sup>232</sup> Rebecca Heilweil, *YouTube’s kids app has a rabbit hole problem*, *Vox* (May 12, 2021), <https://www.vox.com/recode/22412232/youtube-kids-autoplay> (last visited June 24, 2023).

<sup>233</sup> *Id.*

<sup>234</sup> Lesley McClurg, *After compulsively watching YouTube, teenage girl lands in rehab for ‘digital addiction’*, *PBS* (May 16, 2017), <https://www.pbs.org/newshour/health/compulsively-watching-youtube-teenage-girl-lands-rehab-digital-addiction> (last visited June 24, 2023).

overdosing. Weeks later she was in the hospital after “downing a bottle of Tylenol.”<sup>235</sup> Ultimately, she was admitted into rehab for digital addiction because of her compulsive YouTube watching.<sup>236</sup>

196. According to the Pew Research Center, 46% of parents say their child has encountered inappropriate videos on YouTube.<sup>237</sup> Children are not encountering these videos on their own volition. Rather, they are being fed harmful and inappropriate videos through YouTube’s algorithms. Again, YouTube’s AI-driven recommendations are responsible for 70% of the time users spend on YouTube.<sup>238</sup>

197. Other reports have also found that YouTube’s recommendation algorithm suggests a wide array of harmful content, including videos that feature misinformation, violence, and hate speech, along with other content that violates YouTube’s policies.<sup>239</sup> A 2021 crowdsourced investigation from the Mozilla Foundation involving 37,000 YouTube users revealed that 71% of all reported negative user experiences came from videos recommended by YouTube to users.<sup>240</sup> Additionally, users were 40% more likely to report a negative experience with a video recommended by YouTube’s algorithm than with a video for which they had searched.<sup>241</sup>

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<sup>235</sup> *Id.*

<sup>236</sup> *Id.*

<sup>237</sup> Brooke Auxier et al., Parenting Children in The Age of Screens, Pew Rsch. Ctr. (July 28, 2020), <https://www.pewresearch.org/internet/2020/07/28/parental-views-about-youtube/> (last visited June 24, 2023).

<sup>238</sup> Joan E. Solsman, YouTube’s AI is the puppet master over most of what you watch, CNET (Jan. 20, 2018), <https://www.cnet.com/tech/services-and-software/youtube-ces-2018-neal-mohan/> (last visited June 24, 2023).

<sup>239</sup> Brandy Zadrozny, YouTube’s recommendations still push harmful videos, crowdsourced study finds, NBC News (July 17, 2021), <https://www.nbcnews.com/tech/tech-news/youtubes-recommendations-still-push-harmful-videos-crowdsourced-study-rcna1355> (last visited June 24, 2023).

<sup>240</sup> *Id.*

<sup>241</sup> *Id.*

198. The inappropriate and disturbing content to which YouTube’s algorithms expose children have adverse effects on mental health. Mental health experts have warned that YouTube is a growing source of anxiety and inappropriate sexual behavior among children under the age of 13.<sup>242</sup>

199. Further the harmful content to which YouTube’s algorithms expose children harm brain development. “Children who repeatedly experience stressful and/or fearful emotions may under-develop parts of their brain’s prefrontal cortex and frontal lobe, the parts of the brain responsible for executive functions, like making conscious choices and planning ahead,” according to Donna Volpitta, Ed.D., founder of The Center for Resilient Leadership.<sup>243</sup>

200. Even though much of the content YouTube’s algorithms feed to youth is harmful, it triggers chemical reactions that encourage youth to spend more time watching videos on YouTube. According to Dr. Volpitta, watching “fear-inducing videos cause the brain to receive a small amount of dopamine,” which acts as a reward and creates a desire to do something over and over.<sup>244</sup> This dopaminergic response is in addition to the reward stimulus YouTube provides users through IVRs.

201. Mental health professionals across the country have seen an increase in children experiencing mental health issues because of YouTube.<sup>245</sup> Natasha Daniels, a child psychotherapist in Arizona, has said she has seen a rise in cases of children suffering from anxiety because of videos they watched on YouTube. Because of their anxiety, these children “exhibit loss

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<sup>242</sup> Josephine Bila, *YouTube’s dark side could be affecting your child’s mental health*, CNBC (Feb. 13, 2018), <https://www.cnbc.com/2018/02/13/youtube-is-causing-stress-and-sexualization-in-young-children.html> (last visited June 24, 2023).

<sup>243</sup> *Id.*

<sup>244</sup> *Id.*

<sup>245</sup> *Id.*

of appetite, sleeplessness, crying fits and fear.”<sup>246</sup>

202. In addition to causing anxiety, watching YouTube is also associated with insufficient sleep.<sup>247</sup> In one study on the effect of app use and sleep, YouTube was the only app consistently associated with negative sleep outcomes.<sup>248</sup> For every 15 minutes teens spent watching YouTube, they had a 24% greater chance of getting fewer than seven hours of sleep.<sup>249</sup> YouTube is particularly problematic on this front because YouTube’s recommendation and autoplay feature make it “so easy to finish one video” and watch the next, said Dr. Alon Avidan, director of the UCLA Sleep Disorders Center.<sup>250</sup> In turn, insufficient sleep is associated with poor health outcomes.<sup>251</sup> Thus, YouTube exacerbates an array of youth mental health issues by contributing to sleep deprivation.

203. Despite the vast evidence that YouTube’s design and algorithms harm millions of youths, Google continues to manipulate them into staying on the site and watching more and more videos so it can increase its ad revenue.

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<sup>246</sup> *Id.*

<sup>247</sup> Meg Pillion et al., What’s ‘app’-ning to adolescent sleep? Links between device, app use, and sleep outcomes, 100 *Sleep Med.* 174-82 (Dec. 2022), <https://www.sciencedirect.com/science/article/abs/pii/S1389945722010991?via%3Dihub> (last visited June 24, 2023).

<sup>248</sup> *Id.*

<sup>249</sup> *Id.*

<sup>250</sup> Cara Murez, *One App is Especially Bad for Teens’ Sleep*, U.S. News (Sept. 13, 2022), <https://www.usnews.com/news/health-news/articles/2022-09-13/one-app-is-especially-bad-for-teens-sleep> (last visited June 24, 2023).

<sup>251</sup> Jessica C. Levenson et al., *The Association Between Social Media Use and Sleep Disturbance Among Young Adults*, 85 *Preventive Med.* 36-41 (Apr. 2016), <https://www.sciencedirect.com/science/article/abs/pii/S0091743516000025> (last visited June 24, 2023).

**I. Snapchat’s Social Media App Has Substantially Contributed to the Youth Mental Health Crisis**

204. Snapchat is a photo-sharing app that allows users to form groups and share photos, known as “snaps,” that disappear after being viewed by the recipients. It was created in 2011 by Stanford University students Evan Spiegel and Bobby Murphy, who serve as Snap’s Chief Executive Officer (“CEO”) and Chief Technical Officer (“CTO”), respectively.<sup>252</sup>

205. Snapchat quickly evolved from a simple photo-sharing app as Snap made design changes and rapidly developed new features aimed at, and ultimately increasing Snapchat’s popularity among, teenage users.

206. Today, Snapchat is one of the largest social media sites in the world. By its own estimates, Snapchat has 363 million daily users, including 100 million daily users in North America.<sup>253</sup> Snapchat reaches 90% of people aged 13 to 24 in over 20 countries and reaches nearly half of all smartphone users in the United States.<sup>254</sup>

207. Snapchat initially became well known for its self-destructing content feature. In 2012, Snap added video-sharing capabilities, pushing the number of “snaps” to 50 million per day.<sup>255</sup> A year later, Snap added the “Stories” function, which allows users to upload a rolling

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<sup>252</sup> Katie Benner, *How Snapchat is Shaping Social Media*, N.Y. Times (Nov. 30, 2016), <https://www.nytimes.com/2016/11/30/technology/how-snapchat-works.html> (last visited June 24, 2023).

<sup>253</sup> *October 2022 Investor Presentation* at 5, Snap Inc. (Oct. 20, 2022), <https://investor.snap.com/events-and-presentations/presentations/default.aspx> (last visited June 24, 2023).

<sup>254</sup> *Id.* at 6-7.

<sup>255</sup> J.J. Colao, *Snapchat Adds Video, Now Seeing 50 million Photos A Day*, Forbes (Dec. 14, 2012), <https://www.forbes.com/sites/jjcolao/2012/12/14/snapchat-adds-video-now-seeing-50-million-photos-a-day/?sh=55425197631b> (last visited June 24, 2023).

compilation of snaps that the user's friends can view for 24 hours.<sup>256</sup> The following year, Snap added a feature that enabled users to communicate with one another in real time via text or video.<sup>257</sup> It also added the "Our Story" feature, expanding on the original stories function by allowing users in the same location to add their photos and videos to a single publicly viewable content stream.<sup>258</sup> At the same time, Snap gave users the capability to add filters and graphic stickers onto photos indicating a user's location through a feature it refers to as "Geofilters."<sup>259</sup>

208. In 2015, Snap added a "Discover" feature that promotes videos from news outlets and other content creators.<sup>260</sup> Users can watch that content by scrolling through the Discover feed. After the selected video ends, Snapchat automatically plays other video content in a continuous stream unless or until a user manually exits the stream.

209. In 2020, Snap added the "Spotlight" feature, through which it serves users "an endless feed of user-generated content" Snap curates from the 249 million daily Snapchat users.<sup>261</sup>

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<sup>256</sup> Ellis Hamburger, *Snapchat's Next Big Thing: 'Stories' That Don't Just Disappear*, Verge (Oct. 3, 2013), <https://www.theverge.com/2013/10/3/4791934/snapchats-next-big-thing-stories-that-dont-just-disappear> (last visited June 24, 2023).

<sup>257</sup> Romain Dillet, *Snapchat Adds Ephemeral Text Chat and Video Calls*, TechCrunch (May 1, 2014), <https://techcrunch.com/2014/05/01/snapchat-adds-text-chat-and-video-calls/> (last visited June 24, 2023).

<sup>258</sup> Laura Stampler, *Snapchat Just Unveiled a New Feature*, Time (June 17, 2014), <https://time.com/2890073/snapchat-new-feature/> (last visited June 24, 2023).

<sup>259</sup> Angela Moscaritolo, *Snapchat Adds 'Geofilters' in LA, New York*, PC Mag. (July 15, 2014), <https://www.pcmag.com/news/snapchat-adds-geofilters-in-la-new-york> (last visited June 24, 2023).

<sup>260</sup> Steven Tweedie, *How to Use Snapchat's New 'Discover' Feature*, Bus. Insider (Jan. 27, 2015), <https://www.businessinsider.com/how-to-use-snapchat-discover-feature-2015-1> (last visited June 24, 2023).

<sup>261</sup> Salvador Rodriguez, *Snap is launching a competitor to TikTok and Instagram Reels*, CNBC (Nov. 23, 2020), <https://www.cnbc.com/2020/11/23/snap-launching-a-competitor-to-tiktok-and-instagram-reels.html> (last visited June 24, 2023).

### 1. Snap Designs and Markets Its Site to Appeal to a Youth Audience

210. Snap specifically markets Snapchat to children aged 13 to 17 because they are a key demographic for Snap’s advertisers. Advertising is Snap’s primary source of revenue and is essential to its business model.

211. Snap began running advertisements on Snapchat in 2014.<sup>262</sup> Since then, Snapchat’s business model has revolved around its advertising revenue, which has boomed. Snap now expects to generate \$4.86 billion in Snapchat advertising revenue for 2022.<sup>263</sup>

212. Internal documents describe users between the ages of 13 and 34 as “critical” to Snap’s advertising success because of the common milestones achieved within that age range.<sup>264</sup>

213. While Snap lumps teenagers in with younger adults in its investor materials, Snap’s marketing materials featuring young models reveal its priority market:



<sup>262</sup> Sara Fischer, *A timeline of Snap’s advertising, from launch to IPO*, Axios (Feb. 3, 2017), <https://www.axios.com/2017/12/15/a-timeline-of-snaps-advertising-from-launch-to-ipo-1513300279> (last visited June 24, 2023).

<sup>263</sup> Bhanvi Staija, *TikTok’s ad revenue to surpass Twitter and Snapchat combined in 2022*, Reuters (Apr. 11, 2022), <https://www.reuters.com/technology/tiktoks-ad-revenue-surpass-twitter-snapchat-combined-2022-report-2022-04-11/> (last visited June 24, 2023).

<sup>264</sup> *October 2022 Investor Presentation at 27*, Snap Inc. (Oct. 20, 2022), <https://investor.snap.com/events-and-presentations/presentations/default.aspx> (last visited June 24, 2023).



214. In addition to its marketing, Snap has targeted a younger audience by designing Snapchat in a manner that older individuals find hard to use.<sup>265</sup> The effect of this design is that Snapchat is a site where its young users are insulated from older users, including their parents. As Snap’s CEO explained, “[w]e’ve made it very hard for parents to embarrass their children.”<sup>266</sup>

215. Snap also designed Snapchat as a haven for young users to hide content from their parents by ensuring that photos, videos, and chat messages quickly disappear. This design further insulates children from adult oversight.

216. Moreover, Snap added as a feature the ability for users to create cartoon avatars

<sup>265</sup> See Hannah Kuchler & Tim Bradshaw, *Snapchat’s Youth Appeal Puts Pressure on Facebook*, *Fin. Times* (Aug. 21, 2017), <https://www.ft.com/content/07e4dc9e-86c4-11e7-bf50-e1c239b45787> (last visited June 24, 2023).

<sup>266</sup> Max Chafkin & Sarah Frier, *How Snapchat Built a Business by Confusing Olds*, *Bloomberg* (Mar. 3, 2016), <https://www.bloomberg.com/features/2016-how-snapchat-built-a-business/> (last visited June 24, 2023).

modeled after themselves.<sup>267</sup> By using an art form generally associated with and directed at younger audiences, Snap further designed Snapchat to entice teenagers and younger children.

217. In 2013, Snap also marketed Snapchat specifically to children under 13 through a feature it branded “SnapKidz.”<sup>268</sup> This feature – part of the Snapchat product – allowed children under 13 to take photos, draw on them, and save them locally on the device.<sup>269</sup> Children could also send these images to others or upload them to other social media sites.<sup>270</sup>

218. While the SnapKidz feature was later discontinued, and Snap purports to now prohibit users under the age of 13, its executives have admitted that its age verification “is effectively useless in stopping underage users from signing up to the Snapchat app.”<sup>271</sup>

219. Snap’s efforts to attract young users have been successful. Teenagers consistently name Snapchat as a favorite social media site. The latest figures show that 13% of children aged 8 to 12 used Snapchat in 2021,<sup>272</sup> and almost 60% of children aged 13 to 17 use Snapchat.<sup>273</sup>

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<sup>267</sup> Kif Leswing, *Snapchat just introduced a feature it paid more than \$100 million for*, Bus. Insider (July 19, 2016), <https://www.businessinsider.com/snapchat-just-introduced-a-feature-it-paid-more-than-100-million-for-2016-7> (last visited June 24, 2023).

<sup>268</sup> Larry Magid, *Snapchat Creates SnapKidz – A Sandbox for Kids Under 13*, Forbes (June 23, 2013), <https://www.forbes.com/sites/larrymagid/2013/06/23/snapchat-creates-snapkidz-a-sandbox-for-kids-under-13/?sh=7c682a555e5a> (last visited June 24, 2023).

<sup>269</sup> *Id.*

<sup>270</sup> *Id.*

<sup>271</sup> Isobel Asher Hamilton, *Snapchat admits its age verification safeguards are effectively useless*, Bus. Insider (Mar. 19, 2019), <https://www.businessinsider.com/snapchat-says-its-age-verification-safeguards-are-effectively-useless-2019-3> (last visited June 24, 2023).

<sup>272</sup> Victoria Rideout et al., *The Common Sense Census: Media use by tweens and teens at 5*, Common Sense Media (2022), [https://www.common sense media.org/sites/default/files/research/report/8-18-census-integrated-report-final-web\\_0.pdf](https://www.common sense media.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf) (last visited June 24, 2023).

<sup>273</sup> Emily A. Vogels et al., *Teens, Social Media and Technology 2022*, Pew Rsch. Ctr. (Aug. 10, 2022), <https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/> (last visited June 24, 2023).

**2. Snap Intentionally Designs Exploitative Features to Keep Users on Its Site for as Long as Possible**

220. Snap has implemented inherently and intentionally exploitative features into Snapchat that are designed to keep users on its site for as long as possible. These features include “Snapstreaks,” various trophies and reward systems, quickly disappearing (“ephemeral”) messages, and filters. Snap designed these features, along with others, to maximize the amount of time users spend on Snapchat.

221. Snaps are intended to manipulate users by activating the rule of reciprocation.<sup>274</sup> Whenever a user gets a snap, they feel obligated to send a snap back. In addition, Snapchat tells users each time they receive a snap by pushing a notification to the recipient’s cellphone. These notifications are designed to prompt users to open Snapchat and view content, increasing the amount of time users spend on Snapchat. Further, because snaps disappear within ten seconds of being viewed, users feel compelled to reply immediately. This disappearing nature of snaps is a defining characteristic of Snapchat and is intended keep users using the product that it created.

222. Snap also keeps users coming back to the Snapchat site through the “Snapstreaks” feature.<sup>275</sup> A “streak” is a counter within Snapchat that tracks how many consecutive days two users have sent each other snaps. If a user fails to snap the other user within 24 hours, the streak

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<sup>274</sup> Nir Eyal, *The Secret Psychology of Snapchat*, Nir & Far (Apr. 14, 2015), <https://www.nirandfar.com/psychology-of-snapchat/> (last visited June 24, 2023).

<sup>275</sup> See Avery Hartmans, *These are the sneaky ways apps like Instagram, Facebook, Tinder lure you in and get you ‘addicted’*, Bus. Insider (Feb. 17, 2018), <https://www.businessinsider.com/how-app-developers-keep-us-addicted-to-our-smartphones-2018-1#snapchat-uses-snapstreaks-to-keep-you-hooked-13> (last visited June 25, 2023); see generally Virginia Smart & Tyana Grundig, *‘We’re designing minds’: Industry insider reveals secrets of addictive app trade*, CBC (Nov. 3, 2017), <https://www.cbc.ca/news/science/marketplace-phones-1.4384876> (last visited June 25, 2023); Julian Morgans, *The Secret Ways Social Media is Built for Addiction*, Vice (May 17, 2017), <https://www.vice.com/en/article/vv5jkb/the-secret-ways-social-media-is-built-for-addiction> (last visited June 24, 2023).

ends. Snap adds extra urgency by putting an hourglass emoji next to a friend’s name if a Snapchat streak is about to end.<sup>276</sup> This design implements a system where a user must “check constantly or risk missing out.”<sup>277</sup> This feature is particularly effective on teenage users. “For teens in particular, streaks are a vital part of using the app, and of their social lives as a whole.”<sup>278</sup> Some children become so obsessed with maintaining a Snapstreak that they give their friends access to their accounts when they may be away from their phone for a day or more, such as on vacation.<sup>279</sup>

223. Snap also designed features that operate on IVR principles to maximize the time users are on its site. The “rewards” come in the form of a user’s “Snapscore” and other signals of recognition similar to “likes” used in other social media products. For example, a Snapscore increases with each snap a user sends and receives. The increase in score and other trophies and charms users can earn by using the app operate on variable reward patterns. Like Snapstreaks, these features are designed to incentivize sending snaps and increase the amount of time users spend on Snapchat.

224. Snap also designs photo and video filters and lenses, which are central to

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<sup>276</sup> Lizette Chapman, *Inside the Mind of a Snapchat Streaker*, Bloomberg (Jan. 30, 2017), <https://www.bloomberg.com/news/features/2017-01-30/inside-the-mind-of-a-snapchat-streaker> (last visited June 24, 2023).

<sup>277</sup> *Id.*

<sup>278</sup> Avery Hartmans, *These are the sneaky ways apps like Instagram, Facebook, Tinder lure you in and get you ‘addicted’*, Bus. Insider (Feb. 17, 2018), <https://www.businessinsider.com/how-app-developers-keep-us-addicted-to-our-smartphones-2018-1#snapchat-uses-snapstreaks-to-keep-you-hooked-13>; see generally Cathy Becker, Experts warn parents how Snapchat can hook in teens with streaks, ABC News (July 27, 2017), <https://abcnews.go.com/Lifestyle/experts-warn-parents-snapchat-hook-teens-streaks/story?id=48778296> (last visited June 24, 2023).

<sup>279</sup> Caroline Knorr, *How to resist technology addiction*, CNN (Nov. 9, 2017), <https://www.cnn.com/2017/11/09/health/science-of-tech-obsession-partner/index.html>; Jon Brooks, 7 Specific Tactics Social Media Companies Use to Keep You Hooked, KQED (June 9, 2017), <https://www.kqed.org/futureofyou/397018/7-specific-ways-social-media-companies-have-you-hooked> (last visited June 24, 2023).

Snapchat’s function as a photo- and video-sharing social media site. Snap designed its filters and lenses in a way to further maximize the amount of time users spend on Snapchat. One way Snap uses its filters to hook young users is by creating temporary filters that impose a sense of urgency to use them before they disappear. Another way Snap designed its filters to increase screen use is by gamification. Many filters include games,<sup>280</sup> creating competition between users by sending each other snaps with scores. Further, Snap tracks data on the most commonly used filters and develops new filters based on this data.<sup>281</sup> Snap also personalizes filters to further entice individuals to use Snapchat more.<sup>282</sup> Snap designs and modifies these filters to maximize the amount of time users spend on Snapchat.

225. Snap also uses complex algorithms to keep users engaged with Snapchat by suggesting friends to users and recommending new content.

226. Snap notifies users based on an equation Snap uses to determine whether someone should add another user as a friend on Snapchat. This is known as “Quick Add.” By using an algorithm to suggest friends to users, Snapchat increases the odds users will add additional friends, send additional snaps, and spend more time on the app.

227. Snapchat also contains “Discover” and “Spotlight” features that use algorithms to recommend content to users. The Discover feature includes content from news and other media outlets.<sup>283</sup> A user’s Discover page is populated by an algorithm and constantly changes depending

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<sup>280</sup> Josh Constine, *Now Snapchat Has ‘Filter Games’*, TechCrunch (Dec. 23, 2016), <https://techcrunch.com/2016/12/23/snapchat-games/> (last visited June 24, 2023).

<sup>281</sup> *How We Use Your Information*, Snap Inc., <https://snap.com/en-US/privacy/your-information> (last visited June 24, 2023).

<sup>282</sup> *Id.*

<sup>283</sup> Steven Tweedie, *How to Use Snapchat’s New ‘Discover’ Feature*, Bus. Insider (Jan. 27, 2015), <https://www.businessinsider.com/how-to-use-snapchat-discover-feature-2015-1> (last visited June 24, 2023).

on how a user interacts with the content.<sup>284</sup> Similarly, the Spotlight feature promotes popular videos from other Snapchat users and is based on an algorithm that determines whether a user has positively or negatively engaged with similar content.<sup>285</sup> Snap programs its algorithms to push content to users that will keep them engaged on Snapchat and thereby increases the amount of time users spend on Snapchat, worsening their mental health.

### **3. Snap’s Conduct in Designing and Operating Its Product Has Harmed Youth Mental Health**

228. The way in which Snap has designed and operated Snapchat has caused youth to suffer increased anxiety, depression, disordered eating, cyberbullying, and sleep deprivation.

229. Snap knows Snapchat is harming youth because, as alleged above, Snap intentionally designed Snapchat to maximize engagement by preying on the psychology of children through its use of algorithms and other features including Snapstreaks, various trophies and reward systems, quickly disappearing messages, filters, and games.

230. Snap should know that its conduct has negatively affected youth. Snap’s conduct has been the subject of inquiries by the United States Senate regarding Snapchat’s use “to promote bullying, worsen eating disorders and help teens buy dangerous drugs or engage in reckless behavior.”<sup>286</sup> Further, Senators from across the ideological spectrum have introduced bills that would ban many of the features Snapchat uses, including badges and other awards recognizing a

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<sup>284</sup> *How We Use Your Information*, Snap Inc., <https://snap.com/en-US/privacy/your-information> (last visited June 24, 2023).

<sup>285</sup> Sara Fischer, *Snapchat launches Spotlight, a TikTok competitor*, Axios (Nov. 23, 2020), <https://www.axios.com/2020/11/23/snapchat-launches-spotlight-tiktok-competitor>; *How We Use Your Information*, Snap Inc., <https://snap.com/en-US/privacy/your-information> (last visited June 24, 2023).

<sup>286</sup> Bobby Allyn, *4 Takeaways from the Senate child safety hearing with YouTube, Snapchat and TikTok*, Nat’l Pub. Radio (Oct. 26, 2021), <https://www.npr.org/2021/10/26/1049267501/snapchat-tiktok-youtube-congress-child-safety-hearing> (last visited June 24, 2023).

user's level of engagement with the site.<sup>287</sup> Despite these calls for oversight from Congress, Snap has failed to curtail its use of streaks, badges, and other awards that recognize users' level of engagement with Snapchat.

231. Snap also knows or should know of Snapchat's other negative effects on youth because of published research findings. For instance, the Journal of the American Medical Association has recognized that Snapchat's effect on how young people view themselves is so severe that it named a new disorder, "Snapchat dysmorphia," after the site.<sup>288</sup> This disorder describes people, usually young women, seeking plastic surgery to make themselves look the way they do through Snapchat filters.<sup>289</sup> The rationale underlying this disorder is that beauty filters on social media, like Snapchat, create a "sense of unattainable perfection" that is alienating and damaging to a person's self-esteem.<sup>290</sup> One social psychologist summed up the effect this way: "[T]he pressure to present a certain filtered image on social media can certainly play into [depression and anxiety] for younger people who are just developing their identities."<sup>291</sup>

232. Despite knowing Snapchat harms its young users, Snap continues to update and add features intentionally designed to maximize the amount of time users spend on Snapchat. Snap

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<sup>287</sup> See Abigail Clukey, *Lawmaker Aims To Curb Social Media Addiction With New Bill*, Nat'l Pub. Radio (Aug. 3, 2019), <https://www.npr.org/2019/08/03/747086462/lawmaker-aims-to-curb-social-media-addiction-with-new-bill>; Social Media Addiction Reduction Technology Act, S. 2314, 116th Cong. (2019); Kids Internet Design and Safety Act, S. 2918, 117th Cong. (2021) (last visited June 24, 2023).

<sup>288</sup> 'Snapchat Dysmorphia': *When People Get Plastic Surgery To Look Like A Social Media Filter*, WBUR (Aug 29, 2018), <https://www.wbur.org/hereandnow/2018/08/29/snapchat-dysmorphia-plastic-surgery> (last visited June 24, 2023).

<sup>289</sup> *Id.*

<sup>290</sup> Nathan Smith & Allie Yang, *What happens when lines blur between real and virtual beauty through filters*, ABC News (May 1, 2021), <https://abcnews.go.com/Technology/lines-blur-real-virtual-beauty-filters/story?id=77427989> (last visited June 24, 2023).

<sup>291</sup> *Id.*

continues its harmful conduct because its advertising revenue relies on Snapchat's users consuming large volumes of content on its site.

**J. TikTok's Social Media Site Has Substantially Contributed to the Youth Mental Health Crisis**

233. TikTok is a social media site that describes itself as "the leading destination for short-form mobile video."<sup>292</sup> According to TikTok, it is primarily a product where users "create and watch short-form videos."<sup>293</sup>

234. TikTok's predecessor, Musical.ly, launched in 2014 as a place where people could create and share 15-second videos of themselves lip-syncing or dancing to their favorite music.<sup>294</sup>

235. In 2017, ByteDance launched an international version of a similar product that also enabled users to create and share short lip-syncing videos that it called TikTok.<sup>295</sup>

236. That same year, ByteDance acquired Musical.ly to leverage its young user base in the United States of almost 60 million monthly active users.<sup>296</sup>

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<sup>292</sup> *About: Our Mission*, TikTok, <https://www.tiktok.com/about> (last visited June 24, 2023).

<sup>293</sup> Testimony of Michael Beckerman, VP and Head of Public Policy, Americas, TikTok, *Protecting Kids Online: Snapchat, TikTok, and YouTube: Hearing Before the Subcomm. On Consumer Protection, Product Safety, and Data Security*, 117 Cong. (2021).

<sup>294</sup> Biz Carson, *How a failed education startup turned into Musical.ly, the most popular app you've probably never heard of*, *Bus. Insider* (May, 28, 2016), <https://www.businessinsider.com/what-is-musically-2016-5>. (last visited June 24, 2023).

<sup>295</sup> Paresh Dave, *China's ByteDance scrubs Musical.ly brand in favor of TikTok*, *Reuters* (Aug. 1, 2018), <https://www.reuters.com/article/us-bytedance-musically/chinas-bytedance-scrubs-musical-ly-brand-in-favor-of-tiktok-idUSKBN1KN0BW> (last visited June 24, 2023).

<sup>296</sup> Liza Lin & Rolfe Winkler, *Social-Media App Musical.ly Is Acquired for as Much as \$1 billion; With 60 million monthly users, startup sells to Chinese maker of news app Toutiao*, *Wall St. J.* (Nov. 10, 2017), <https://www.wsj.com/articles/lip-syncing-app-musical-ly-is-acquired-for-as-much-as-1-billion-1510278123> (last visited June 25, 2023).

237. Months later, the apps were merged under the TikTok brand.<sup>297</sup>

238. Since then, TikTok has expanded the length of time for videos from 15 seconds to up to 10 minutes;<sup>298</sup> created a fund that was expected to grow to over \$1 billion within three years to incentivize users to create videos that even more people will watch;<sup>299</sup> and had users debut their own songs, share comedy skits,<sup>300</sup> and “challenge” others to perform an activity.<sup>301</sup>

239. TikTok has designed its product to facilitate bottomless scrolling with a never-ending stream of videos.

240. “[O]ne of the defining features of the TikTok platform” is its “For You” feed.<sup>302</sup> This is a space within the product where TikTok offers content supposedly curated for them based on complex, machine-learning algorithms intended to keep users on its site. TikTok itself describes the feed as “central to the TikTok experience and where most of our users spend their time.”<sup>303</sup>

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<sup>297</sup> Paresh Dave, *China’s ByteDance scrubs Musical.ly brand in favor of TikTok*, Reuters (Aug. 1, 2018), <https://www.reuters.com/article/us-bytedance-musically/chinas-bytedance-scrubs-musical-ly-brand-in-favor-of-tiktok-idUSKBN1KN0BW> (last visited June 25, 2023).

<sup>298</sup> Andrew Hutchinson, *TikTok Confirms that 10 Minute Video Uploads are Coming to All Users*, SocialMediaToday (Feb. 28, 2022), <https://www.socialmediatoday.com/news/tiktok-confirms-that-10-minute-video-uploads-are-coming-to-all-users/619535/> (last visited June 25, 2023).

<sup>299</sup> Vanessa Pappas, *Introducing the \$200M TikTok Creator Fund*, TikTok (July 29, 2021), <https://newsroom.tiktok.com/en-us/introducing-the-200-million-tiktok-creator-fund> (last visited June 25, 2023).

<sup>300</sup> Joseph Steinberg, *Meet Musical.ly, the Video Social Network Quickly Capturing the Tween and Teen Markets*, Inc. (June 2, 2016), <https://www.inc.com/joseph-steinberg/meet-musically-the-video-social-network-quickly-capturing-the-tween-and-teen-m.html> (last visited June 25, 2023).

<sup>301</sup> John Herrman, *How TikTok is Rewriting the World*, N.Y. Times (Mar. 10, 2019), <https://www.nytimes.com/2019/03/10/style/what-is-tik-tok.html> (last visited June 25, 2023).

<sup>302</sup> *How TikTok recommends videos #ForYou*, TikTok (June 18, 2020), <https://newsroom.tiktok.com/en-us/how-tiktok-recommends-videos-for-you> (last visited June 25, 2023).

<sup>303</sup> *Id.*

The New York Times described it this way:

It's an algorithmic feed based on videos you've interacted with, or even just watched. It never runs out of material. It is not, unless you train it to be, full of people you know, or things you've explicitly told it you want to see. It's full of things that you seem to have demonstrated you want to watch, no matter what you actually say you want to watch.<sup>304</sup>

241. The "For You" feed has successfully garnered TikTok hundreds of millions of users. Since 2018, TikTok has grown from 271 million global users to more than 1 billion global monthly users as of September 2021.<sup>305</sup> As of July 2020, "TikTok classified more than a third of its 49 million daily users in the United States as being 14 years old or younger," and that likely underestimates those under 14 and older teenagers (i.e., those between 15 and 18 years old) because TikTok claims not to know how old a third of its daily users are.<sup>306</sup>

#### **1. TikTok Designs and Markets Its Site to Appeal to a Youth Audience**

242. TikTok, like the other Defendants' products, has built its business plan around advertising revenue, which has boomed. In 2022, TikTok is projected to receive \$11 billion in advertising revenue, over half of which (i.e., \$6 billion) is expected to come from the United States.<sup>307</sup>

243. TikTok, since its inception as Musical.ly, has been designed and developed with

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<sup>304</sup> John Herrman, *How TikTok is Rewriting the World*, N.Y. Times (Mar. 10, 2019), <https://www.nytimes.com/2019/03/10/style/what-is-tik-tok.html> (last visited June 25, 2023).

<sup>305</sup> Jessica Bursztynsky, *TikTok says 1 billion people use the app each month*, CNBC (Sept. 27, 2021), <https://www.cnbc.com/2021/09/27/tiktok-reaches-1-billion-monthly-users.html> (last visited June 25, 2023).

<sup>306</sup> Raymond Zhong & Sheera Frenkel, *A Third of TikTok's U.S. Users May Be 14 or Under, Raising Safety Questions*, N.Y. Times (Sept. 17, 2020), <https://www.nytimes.com/2020/08/14/technology/tiktok-underage-users-ftc.html> (last visited June 25, 2023).

<sup>307</sup> Bhanvi Staija, *TikTok's ad revenue to surpass Twitter and Snapchat combined in 2022*, Reuters (Apr. 11, 2022), <https://www.reuters.com/technology/tiktoks-ad-revenue-surpass-twitter-snapchat-combined-2022-report-2022-04-11/> (last visited June 25, 2023).

youth in mind.

244. Alex Zhu (“Zhu”) and Louis Yang (“Yang”), the co-founders of Musical.ly, raised \$250,000 to build an app that experts could use to create short three- to five-minute videos explaining a subject.<sup>308</sup> The day they released the app, Zhu said they knew “[i]t was doomed to be a failure” because “[i]t wasn’t entertaining, and it didn’t attract teens.”<sup>309</sup>

245. According to Zhu, he stumbled upon the idea that would become known as TikTok while observing teens on a train, half of whom were listening to music, while the other half took selfies or videos and shared the results with friends.<sup>310</sup> “That’s when Zhu realized he could combine music, videos, and a social network to attract the early-teen demographic.”<sup>311</sup>

246. Zhu and Yang thereafter developed the short-form video app that is now known as TikTok, which commentators have observed “encourages a youthful audience in subtle and obvious ways.”<sup>312</sup>

247. Among the more subtle ways the app was marketed to youth are its design and content. For example, the Federal Trade Commission (“FTC”) alleged that the app: (a) initially centered around a child-oriented activity (i.e., lip syncing); (b) featured music by celebrities that then appealed primarily to teens and tweens, such as Selena Gomez and Ariana Grande; (c) labeled folders with names meant to appeal to youth, such as “Disney” and “school”; and (d) included

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<sup>308</sup> Biz Carson, *How a failed education startup turned into Musical.ly, the most popular app you’ve probably never heard of*, Bus. Insider (May 28, 2016), <https://www.businessinsider.com/what-is-musically-2016-5> (last visited June 25, 2023).

<sup>309</sup> *Id.*

<sup>310</sup> *Id.*

<sup>311</sup> *Id.*

<sup>312</sup> John Herrman, *Who’s Too Young for an App? Musical.ly Tests the Limits*, N.Y. Times (Sept. 16, 2016), <https://www.nytimes.com/2016/09/17/business/media/a-social-network-frequented-by-children-tests-the-limits-of-online-regulation.html> (last visited June 25, 2023).

songs in such folders related to Disney television shows and movies, such as “Can You Feel the Love Tonight” from the movie “The Lion King” and “You’ve Got a Friend in Me” from the movie “Toy Story” and songs covering school-related subjects or school-themed television shows and movies.<sup>313</sup>

248. The target demographic was also reflected in the sign-up process. In 2016, the birthdate for those signing up for the app defaulted to the year 2000 (i.e., 16 years old).<sup>314</sup>

249. TikTok also cultivated a younger demographic in unmistakable, albeit concealed, ways. In 2020, The Intercept reported on a document TikTok prepared for its moderators. In the document, TikTok instructs its moderators that videos of senior people with “too many wrinkles” are disqualified for the “For You” feed because that would make “the video . . . much less attractive [and] not worth[] . . . recommend[ing.]”<sup>315</sup>

250. In December 2016, Zhu confirmed the company had actual knowledge that a lot of their users are under 13, including some top users.<sup>316</sup>

251. The FTC alleged that despite the company’s knowledge of these and a “significant percentage” of other users who were under 13, the company failed to comply with COPPA.<sup>317</sup>

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<sup>313</sup> Complaint for Civil Penalties, Permanent Injunction, and Other Equitable Relief, United States v. Musical.ly, No. 2:19-cv-01439-ODW-RAO, ECF 1 (“Musical.ly Complaint”) at 8, ¶¶26-27 (C.D. Cal. Feb. 27, 2019).

<sup>314</sup> Melia Robinson, *How to use Musical.ly, the app with 150 million users that teens are obsessed with*, Bus. Insider (Dec. 7, 2016), <https://www.businessinsider.com/how-to-use-musically-app-2016-12> (last visited June 25, 2023).

<sup>315</sup> Sam Biddle et al., *Invisible Censorship: TikTok Told Moderators to Suppress Posts by “Ugly” People and the Poor to Attract New Users*, The Intercept (Mar. 15, 2020), <https://theintercept.com/2020/03/16/tiktok-app-moderators-users-discrimination/> (last visited June 25, 2023).

<sup>316</sup> Jon Russell, *Muscal.ly defends its handling of young users, as it races past 40M MAUs at 8:58-11:12*, TechCrunch (Dec. 6, 2016), <https://techcrunch.com/2016/12/06/musically-techcrunch-disrupt-london/> (last visited June 25, 2023).

<sup>317</sup> See generally Musical.ly Complaint, ¶19.

252. TikTok settled those claims in 2019 by agreeing to pay what was then the largest-ever civil penalty under COPPA and to several forms of injunctive relief.<sup>318</sup>

253. In an attempt to come into compliance with the consent decree and COPPA, TikTok made available to users under 13 what it describes as a “limited, separate app experience.”<sup>319</sup> The child version of TikTok restricts users from posting videos through the app. Children can still, however, record and watch videos on TikTok.<sup>320</sup> For that reason, experts fear the app is “designed to fuel [children’s] interest in the grown-up version.”<sup>321</sup>

254. These subtle and obvious ways TikTok markets to and obtained a young user base are manifestations of Zhu’s views about the importance of user engagement to growing TikTok. Zhu explained the target demographic to The New York Times: “[T]eenage culture doesn’t exist” in China because “teens are super busy in school studying for tests, so they don’t have the time and luxury to play social media apps.”<sup>322</sup> By contrast, Zhu describes “[t]eenagers in the U.S. [as] a golden audience.”<sup>323</sup>

255. TikTok’s efforts to attract young users have been successful. Over 67% of children

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<sup>318</sup> Lesley Fair, *Largest FTC COPPA settlement requires Musical.ly to change its tune*, FTC (Feb. 27, 2019), <https://www.ftc.gov/business-guidance/blog/2019/02/largest-ftc-coppa-settlement-requires-musically-change-its-tune> (last visited June 25, 2023).

<sup>319</sup> Dami Lee, *TikTok stops young users from uploading videos after FTC settlement*, Verge (Feb. 27, 2019), <https://www.theverge.com/2019/2/27/18243510/tiktok-age-young-user-videos-ftc-settlement-13-childrens-privacy-law> (last visited June 25, 2023).

<sup>320</sup> *Id.*

<sup>321</sup> Leonard Sax, *Is TikTok Dangerous for Teens?*, Inst. for Fam. Stud. (Mar. 29, 2022), <https://ifstudies.org/blog/is-tiktok-dangerous-for-teens-> (last visited June 25, 2023).

<sup>322</sup> Paul Mozur, *Chinese Tech Firms Forced to Choose Market: Home or Everywhere Else*, N.Y. Times (Aug. 9, 2016), <https://www.nytimes.com/2016/08/10/technology/china-homegrown-internet-companies-rest-of-the-world.html> (last visited June 25, 2023).

<sup>323</sup> *Id.*

aged 13 to 17 report having used the TikTok app.<sup>324</sup>

**2. TikTok Intentionally Designs Features to Keep Users on Its Site for as Long as Possible**

256. Like the other Defendants' social media products, TikTok developed features that exploit psychological phenomenon such as IVRs and reciprocity to maximize the time users spend on its site.

257. TikTok employs design elements and complex algorithms to simulate variable reward patterns in a flow-inducing stream of short-form videos intended to captivate its users' attention well after they are satiated.

258. TikTok drives habitual use of its product using design elements that operate on principles of IVRs. For example, TikTok designed its product to allow users to like and reshare videos. Those features serve as rewards for users who create content on the site. Receiving a like or reshare indicates that others approve of that user's content and satisfies their natural desire for acceptance.<sup>325</sup> Studies have shown that "likes" activate the reward region of the brain.<sup>326</sup> The release of dopamine in response to likes creates a positive feedback loop.<sup>327</sup> Users will use TikTok again and again in the hope of another pleasurable experience.<sup>328</sup>

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<sup>324</sup> Emily A. Vogels et al., *Teens, Social Media and Technology 2022*, Pew Rsch. Ctr. (Aug. 10, 2022), <https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/> (last visited June 25, 2023).

<sup>325</sup> See, e.g., Lauren E. Sherman et al., *The Power of the Like in Adolescence: Effects of Peer Influence on Neural and Behavioral Responses to Social Media*, 27(7) *Psych. Sci.* 1027-35 (July 2016), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5387999/> (last visited June 25, 2023).

<sup>326</sup> *Id.*

<sup>327</sup> Rasan Burhan & Jalal Moradzadeh, *Neurotransmitter Dopamine (DA) and its Role in the Development of Social Media Addiction*, 11(7) *J. Neurology & Neurophysiology* 507 (2020), <https://www.iomcworld.org/open-access/neurotransmitter-dopamine-da-and-its-role-in-the-development-of-social-media-addiction.pdf> (last visited June 25, 2023).

<sup>328</sup> *Id.*

259. TikTok also uses reciprocity to manipulate users to use the site. TikTok invokes reciprocity through features like “Duet.” The Duet feature allows users to post a video side by side with a video from another TikTok user. Users use Duet as a way to react to the videos of TikTok content creators. The response is intended to engender a reciprocal response from the creator of the original video.

260. TikTok, like Snapchat, offers video filters, lenses, and music, which are intended to keep users on its site. Also, like Snapchat, TikTok has gamified its product through “challenges.” These challenges are essentially campaigns in which users compete to perform a specific task. By fostering competition, TikTok incentivizes users to use its product.

261. TikTok’s defining feature, its “For You” feed, is a curated, never-ending stream of short-form videos intended to keep users on its site. In that way, TikTok feeds users beyond the point they are satiated. The ability to scroll ad infinitum, coupled with the variable reward pattern of TikTok, induces a flow-like state for users that distorts their sense of time.<sup>329</sup> That flow is yet another way TikTok increases the time users spend using its product.

262. Like other Defendants, TikTok employs algorithms to keep users engaged. For instance, the first thing users see when they open TikTok is the “For You” feed even if they have never posted anything, followed anyone, or liked a video.<sup>330</sup>

263. The “For You” page presents users with a “stream of videos” TikTok claims are

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<sup>329</sup> Christian Montag et al., *Addictive Features of Social Media/Messenger Platforms and Freemium Games against the Background of Psychological and Economic Theories*, 16(14) *Int’l J. Env’t Rsch. & Pub. Health* 2612 (July 23, 2019), <https://doi.org/10.3390/ijerph16142612> (last visited June 25, 2023).

<sup>330</sup> Brian Feldman, *TikTok is Not the Internet’s Eden*, *N.Y. Mag.* (Mar. 16, 2020), <https://nymag.com/intelligencer/2020/03/tiktok-didnt-want-you-to-see-ugly-or-poor-people-on-its-app.html> (last visited June 25, 2023).

“curated to [each user’s] interests.”<sup>331</sup>

264. According to TikTok, it populates each user’s “For You” feed by “ranking videos based on a combination of factors” that include, among others, any interests expressed when a user registers a new account, videos a user likes, accounts they follow, hashtags, captions, sounds in a video they watch, and certain device settings such as their language preferences and where they are located.<sup>332</sup>

265. Critically, some factors weigh heavier than others. To illustrate, TikTok explains that an indicator of interest, such as “whether a user finishes watching a longer video from beginning to end, would receive greater weight than a weak indicator, such as whether the video’s viewer and creator are both in the same country.”<sup>333</sup>

266. TikTok claims it ranks videos in this way because the length of time a user spends watching a video is a “strong indicator of interest.”<sup>334</sup>

267. However, Zhu offered a different explanation. He repeatedly told interviewers that he was “focused primarily on increasing the engagement of existing users.”<sup>335</sup> “Even if you have tens of millions of users,” Zhu explained, “you have to keep them *always* engaged.”<sup>336</sup>

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<sup>331</sup> *How TikTok recommends videos #ForYou*, TikTok (June 18, 2020), <https://newsroom.tiktok.com/en-us/how-tiktok-recommends-videos-for-you> (last visited June 25, 2023).

<sup>332</sup> *Id.*

<sup>333</sup> *Id.*

<sup>334</sup> *Id.*

<sup>335</sup> Joseph Steinberg, *Meet Musical.ly, the Video Social Network Quickly Capturing the Tween and Teen Markets*, Inc. (June 2, 2016), <https://www.inc.com/joseph-steinberg/meet-musically-the-video-social-network-quickly-capturing-the-tween-and-teen-m.html> (last visited June 25, 2023)

<sup>336</sup> Biz Carson, *How a failed education startup turned into Musical.ly, the most popular app you’ve probably never heard of*, Bus. Insider (May 28, 2016),

268. The decisions TikTok made in programming its algorithms are intended to do just that, as TikTok candidly explained in an internal document titled, “TikTok Algo 101.” The document, which TikTok has confirmed is authentic, “explains frankly that in the pursuit of the company’s ‘ultimate goal’ of adding daily active users, it has chosen to optimize for two closely related metrics in the stream of videos it serves: ‘retention’ – that is, whether a user comes back – and ‘time spent.’”<sup>337</sup>

269. “This system means that watch time is key.”<sup>338</sup> Chaslot, the founder of Algo Transparency, who reviewed the document at the request of The New York Times, explained: “[R]ather than giving [people] what they really want,” TikTok’s “algorithm tries to get people addicted.”<sup>339</sup>

270. Put another way, the algorithm, coupled with the design elements, conditions users through reward-based learning processes to facilitate the formation of habit loops that encourage excessive use.

271. The end result is that TikTok uses “a machine-learning system that analyzes each video and tracks user behavior so it can serve up a continually refined, never-ending stream of TikToks optimized to hold [users’] attention.”<sup>340</sup>

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<https://www.businessinsider.com/what-is-musically-2016-5> (last visited June 25, 2023) (emphasis added).

<sup>337</sup> Ben Smith, *How TikTok Reads Your Mind*, N.Y. Times (Dec. 5, 2021), <https://www.nytimes.com/2021/12/05/business/media/tiktok-algorithm.html> (last visited June 25, 2023)

<sup>338</sup> *Id.*

<sup>339</sup> *Id.*

<sup>340</sup> Jia Tolentino, *How TikTok Holds Our Attention*, New Yorker (Sept. 30, 2019), <https://www.newyorker.com/magazine/2019/09/30/how-tiktok-holds-our-attention> (last visited June 25, 2023)

### 3. TikTok’s Conduct in Designing and Operating Its Site Has Harmed Youth Mental Health

272. TikTok’s decision to program its algorithms to prioritize user engagement causes harmful and exploitative content to be amplified to the young market it has cultivated.

273. TikTok’s prioritization of user engagement amplifies the spread of misinformation and content that promotes hate speech and self-harm. The Integrity Institute, a nonprofit organization of engineers, product managers, data scientists, and others, has demonstrated how prioritizing user engagement amplifies misinformation on TikTok and other social media products.<sup>341</sup> That pattern, the Integrity Institute notes, is “true for a broad range of harms,” including hate speech and self-harm content, in addition to misinformation.<sup>342</sup>

274. The Integrity Institute’s analysis builds on a premise Mark Zuckerberg (“Zuckerberg”), CEO of Facebook, described as the “Natural Engagement Pattern.”<sup>343</sup>

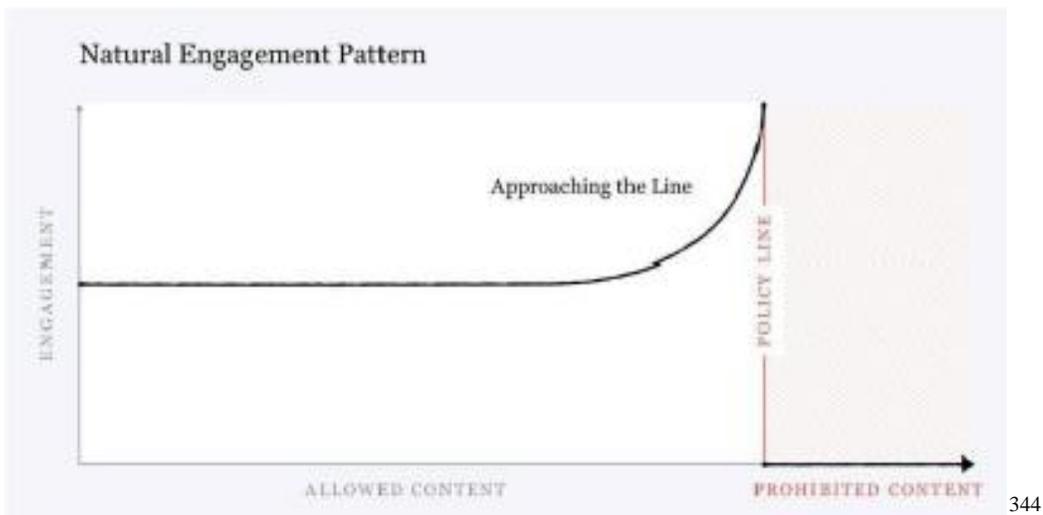
275. The chart below shows that as content gets closer and closer to becoming harmful, on average, it gets more engagement:

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<sup>341</sup> *Misinformation Amplification Analysis and Tracking Dashboard*, Integrity Inst. (Oct. 13, 2022), <https://integrityinstitute.org/our-ideas/hear-from-our-fellows/misinformation-amplification-tracking-dashboard> (last visited June 25, 2023); see also Steven Lee Myers, *How Social Media Amplifies Misinformation More Than Information*, N.Y. Times (Oct. 13, 2022), <https://www.nytimes.com/2022/10/13/technology/misinformation-integrity-institute-report.html> (last visited June 25, 2023)

<sup>342</sup> *Misinformation Amplification Analysis and Tracking Dashboard*, Integrity Inst. (Oct. 13, 2022), <https://integrityinstitute.org/our-ideas/hear-from-our-fellows/misinformation-amplification-tracking-dashboard> (last visited June 25, 2023)

<sup>343</sup> Mark Zuckerberg, *A Blueprint for Content Governance and Enforcement*, Facebook (May 5, 2021), <https://www.facebook.com/notes/751449002072082/> (last visited June 25, 2023)



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276. According to Zuckerberg: “[N]o matter where we draw the lines for what is allowed, as a piece of content gets close to that line, people will engage with it more on average.”<sup>345</sup>

277. This has important implications for any social media site design, as the Integrity Institute explains:

[W]hen [sites] use machine learning models to predict user engagement on content, we should expect the predicted engagement to follow the actual engagement. When those predictions are used to rank and recommend content, specifically when a higher predicted engagement score means the content is more likely to be recommended or placed at the top of feeds, then we expect that misinformation will be preferentially distributed and amplified on the [site].<sup>346</sup>

278. Put differently, if you use past engagement to predict future engagement, as TikTok does, you are most likely to populate users “For You” feed with harmful content.

279. The Integrity Institute tested its theory by analyzing the spread of misinformation on TikTok. Specifically, the Integrity Institute compared the amount of engagement (e.g., number

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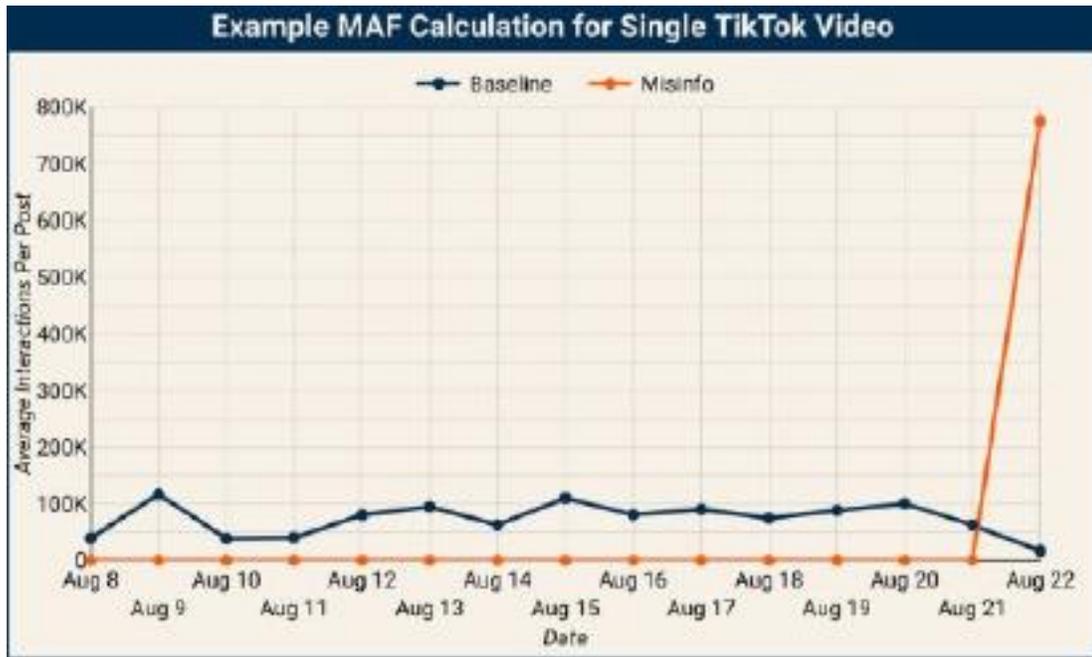
<sup>344</sup> *Id.*

<sup>345</sup> *Id.*

<sup>346</sup> *Misinformation Amplification Analysis and Tracking Dashboard*, Integrity Inst. (Oct. 13, 2022), <https://integrityinstitute.org/our-ideas/hear-from-our-fellows/misinformation-amplification-tracking-dashboard> (last visited June 25, 2023)

of views) received by a post containing misinformation as compared to prior posts from the same content creator.<sup>347</sup>

280. For example, a TikTok user's historical posts received on average 75,000 views. When that same user posted a false statement (as determined by the International Fact Checking Network), the post received 775,000 views. In this case, TikTok amplified the misinformation ten times more than this user's typical content.<sup>348</sup>



281. After analyzing many other posts from other users, the Integrity Institute found that TikTok on average amplified misinformation 29 times more than other content.<sup>349</sup>

282. A separate investigation by NewsGuard found TikTok's search algorithm similarly amplified misinformation. TikTok's search engine, like its "For You" feed, is a favorite among

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<sup>347</sup> *Id.*

<sup>348</sup> *Id.*

<sup>349</sup> *Id.*

youth, with 40% preferring it (and Instagram) over Google.<sup>350</sup> Unfortunately, NewsGuard found that one in five of the top 20 TikTok search results on prominent news topics, such as school shootings and COVID-19 vaccines, contain misinformation.<sup>351</sup>

283. Misinformation is just one type of harmful content TikTok amplifies to its young users. Investigations by The Wall Street Journal found TikTok inundated young users with videos about depression, self-harm, drugs, and extreme diets, to name a few.

284. In one investigation, The Wall Street Journal found TikTok’s algorithm quickly pushed users down rabbit holes where they were more likely to encounter harmful content. The Wall Street Journal investigated how TikTok’s algorithm chose what content to promote to users by having 100 bots scroll through the “For You” feed.<sup>352</sup> Each bot was programmed with interests, such as extreme sports, forestry, dance, astrology, and animals.<sup>353</sup> Those interests were not disclosed in the process of registering their accounts.<sup>354</sup> Rather, the bots revealed their interests through their behaviors, specifically the time they spent watching the videos TikTok recommended to them. Consistent with TikTok’s internal “Algo 101” document, The Wall Street Journal found time spent watching videos was “the most impactful data on [what] TikTok serves you.”<sup>355</sup>

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<sup>350</sup> Wanda Pogue, *Move Over Google. TikTok Is the Go-To Search Engine for Gen Z*, Adweek (Aug. 4, 2022), <https://www.adweek.com/social-marketing/move-over-google-tiktok-is-the-go-to-search-engine-for-gen-z/> (last visited June 25, 2023)

<sup>351</sup> *Misinformation Monitor*, NewsGuard (Sept. 2022), <https://www.newsguardtech.com/misinformation-monitor/september-2022/> (last visited June 25, 2023)

<sup>352</sup> *Inside TikTok’s Algorithm: A WSJ Video Investigation*, Wall St. J. (July 21, 2021), <https://www.wsj.com/articles/tiktok-algorithm-video-investigation-11626877477> (last visited June 25, 2023)

<sup>353</sup> *Id.*

<sup>354</sup> *Id.*

<sup>355</sup> *Id.*

285. Over the course of 36 minutes, one bot watched 224 videos, lingering over videos with hashtags for “depression” or “sad.”<sup>356</sup> From then on, 93% of the videos TikTok showed this account were about depression or sadness.<sup>357</sup>

286. That is not an outlier. Former YouTube engineer Guillaume Chaslot who worked on the algorithm for YouTube, explained that 90% to 95% of the content users see on TikTok is based on its algorithm.<sup>358</sup>

287. “[E]ven bots with general mainstream interests got pushed to the margin as the recommendations got more personalized and narrow.”<sup>359</sup> Deep in these rabbit holes, The Wall Street Journal found “users are more likely to encounter potential harmful content.”<sup>360</sup>

288. Chaslot explained why TikTok feeds users this content:

[T]he algorithm is able to find the piece of content that you’re vulnerable to. That will make you click, that will make you watch, but it doesn’t mean you really like it. And that it’s the content that you enjoy the most. It’s just the content that’s most likely to make you stay on the [site].<sup>361</sup>

289. A follow-up investigation by The Wall Street Journal using bots found “that through its powerful algorithms, TikTok can quickly drive minors – among the biggest users of the app – into endless spools of content about sex and drugs.”<sup>362</sup>

290. The bots in this investigation were registered as users aged 13 to 15 and, as before,

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<sup>356</sup> *Id.*

<sup>357</sup> *Id.*

<sup>358</sup> *Id.*

<sup>359</sup> *Id.*

<sup>360</sup> *Id.*

<sup>361</sup> *Id.*

<sup>362</sup> Rob Barry et al., *How TikTok Serves Up Sex and Drug Videos to Minors*, Wall St. J. (Sept. 8, 2021), [https://www.wsj.com/articles/tiktok-algorithm-sex-drugs-minors-11631052944?st=e92pu5734lvc7ta&reflink=desktopwebshare\\_permalink](https://www.wsj.com/articles/tiktok-algorithm-sex-drugs-minors-11631052944?st=e92pu5734lvc7ta&reflink=desktopwebshare_permalink) (last visited June 25, 2023)

programmed to demonstrate interest by how long they watched the videos TikTok’s algorithms served them.<sup>363</sup> The bots scrolled through videos that did not match their interests without pausing.<sup>364</sup> The bots lingered on videos that matched any of their programmed interests.<sup>365</sup>

291. Every second the bot hesitated or rewatched a video again proved key to what TikTok recommended to the accounts, which The Wall Street Journal found was used to “drive users of any age deep into rabbit holes of content.”<sup>366</sup>

292. For example, one bot was programmed to pause on videos referencing drugs, among other topics. The first day on the site, the “account lingered on a video of a young woman walking through the woods with a caption suggesting she was in search of marijuana.”<sup>367</sup> The following day, the bot viewed a video of a “marijuana-themed cake.”<sup>368</sup> The “majority of the next thousand videos” TikTok directed at the teenage account “tout[ed] drugs and drug use, including marijuana, psychedelics and prescription medication.”<sup>369</sup>

293. TikTok similarly zeroed in on and narrowed the videos it showed accounts whether the bot was programmed to express interest in drugs, sexual imagery, or a multitude of interests. In the first couple of days, TikTok showed the bots a “high proportion of popular videos.”<sup>370</sup> “But after three days, TikTok began serving a high number of obscure videos.”<sup>371</sup>

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<sup>363</sup> *Id.*

<sup>364</sup> *Id.*

<sup>365</sup> *Id.*

<sup>366</sup> *Id.*

<sup>367</sup> *Id.*

<sup>368</sup> *Id.*

<sup>369</sup> *Id.*

<sup>370</sup> *Id.*

<sup>371</sup> *Id.*

294. For example, a bot registered as a 13-year-old was shown a series of popular videos upon signing up.<sup>372</sup> The bot, which was programmed to demonstrate interest in sexual text and imagery, also watched sexualized videos.

295. At least 2,800 of the sexualized videos that were shown to The Wall Street Journal's bots were labeled as being for adults only.<sup>373</sup> However, TikTok directed these videos to the minor accounts because, as TikTok told The Wall Street Journal, it does not “differentiate between videos it serves to adults and minors.”<sup>374</sup>

296. TikTok also directed a concentrated stream of videos at accounts programmed to express interest in a variety of topics. One such account was programmed to linger over hundreds of Japanese film and television cartoons. “In one streak of 150 videos, all but four” of the videos TikTok directed at the account “featured Japanese animation – many with sexual themes.”<sup>375</sup>

297. The relentless stream of content intended to keep users engaged “can be especially problematic for young people” because they may lack the capability to stop watching, says David Anderson, a clinical psychologist at the nonprofit mental health care provider, The Child Mind Institute.<sup>376</sup>

298. In a similar investigation, The Wall Street Journal found TikTok “flood[ed] teen users with videos of rapid-weight-loss competitions and ways to purge food that health professionals say contribute to a wave of eating-disorder cases spreading across the country.”<sup>377</sup>

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<sup>372</sup> *Id.*

<sup>373</sup> *Id.*

<sup>374</sup> *Id.*

<sup>375</sup> *Id.*

<sup>376</sup> *Id.*

<sup>377</sup> Tawnell D. Hobbs et al., *The Corpse Bride Diet: How TikTok Inundates Teens with Eating-Disorder Videos*, Wall St. J. (Dec. 17, 2021), <https://www.wsj.com/articles/how-tiktok->

299. In this investigation, The Wall Street Journal analyzed the tens of thousands of videos TikTok recommended to a dozen bots registered as 13-year-olds. As before, the bots were given interests. Bots scrolled quickly through videos that did not match their interests and lingered on videos that did.<sup>378</sup> The accounts registered as 13-year-olds were programmed at different times to display interests in weight loss, gambling, and alcohol.<sup>379</sup>

300. “TikTok’s algorithm quickly g[ave] users the content they’ll watch, for as long as they’ll watch it.”<sup>380</sup> For example, TikTok streamed gambling videos to a bot registered to a 13-year-old after it first searched for and favorited several such videos.<sup>381</sup> When the bot began demonstrating interest in weight loss videos, the algorithm adapted quickly, as the chart below demonstrates:<sup>382</sup>

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[inundates-teens-with-eating-disorder-videos-11639754848](#) (last visited June 25, 2023) (some of the accounts performed searches or sent other, undisclosed signals indicating their preferences).

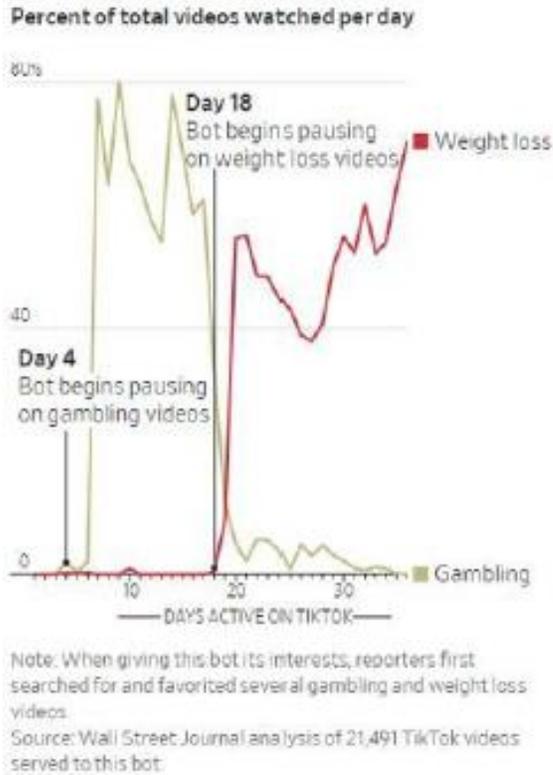
<sup>378</sup> *Id.*

<sup>379</sup> *Id.*

<sup>380</sup> *Id.*

<sup>381</sup> *Id.*

<sup>382</sup> *Id.*



301. After the change in programming, weight loss videos accounted for well over 40% of the content TikTok’s algorithm recommended to the user.<sup>383</sup>

302. The other accounts were also flooded with weight loss videos. Over the course of about 45 days, TikTok inundated the accounts with more than 32,000 such videos, “many promoting fasting, offering tips for quickly burning belly fat and pushing weight-loss detox programs and participation in extreme weight-loss competitions.”<sup>384</sup> Some encouraged purging, eating less than 300 calories a day, consuming nothing but water some days, and other hazardous diets.<sup>385</sup>

303. According to Alyssa Moukheiber, a treatment center dietitian, TikTok’s powerful

<sup>383</sup> *Id.*

<sup>384</sup> *Id.*

<sup>385</sup> *Id.*

algorithm and the harmful streams of content it directs at young users can tip them into unhealthy behaviors or trigger a relapse.<sup>386</sup>

304. Unfortunately, it has done just that for several teenage girls interviewed by The Wall Street Journal, who reported developing eating disorders or relapsing after being influenced by the extreme diet videos TikTok promoted to them.<sup>387</sup>

305. They are not alone. Katie Bell, a co-founder of the Healthy Teen Project, “said the majority of her 17 teenage residential patients told her TikTok played a role in their eating disorders.”<sup>388</sup>

306. Others, like Stephanie Zerwas, an associate professor of psychiatry at the University of North Carolina at Chapel Hill, could not recount how many of her young patients told her that: “I’ve started falling down this rabbit hole, or I got really into this or that influencer on TikTok, and then it started to feel like eating-disorder behavior was normal, that everybody was doing that.”<sup>389</sup>

307. This trend extends nationwide. The National Association of Anorexia Nervosa and Associated Disorders has fielded 50% more calls to its hotline since the pandemic began, most of whom it says are from young people or parents on their behalf.<sup>390</sup>

308. Despite the ample evidence that TikTok’s design and operation of its product harms the tens of millions of youths who use it, TikTok continues to manipulate them into returning to the site again and again so that it may serve them ads in between the exploitative content it

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<sup>386</sup> *Id.*

<sup>387</sup> *Id.*

<sup>388</sup> *Id.*

<sup>389</sup> *Id.*

<sup>390</sup> *Id.*

amplifies.

**V. THE COMMUNICATIONS DECENCY ACT EXPRESSLY ALLOWS INTERACTIVE COMPUTER SERVICE COMPANIES TO LIMIT HARMFUL CONTENT AND PROVIDES NO BLANKET IMMUNITY FOR THE ALLEGED MISCONDUCT HERE**

309. The Communications Decency Act, 47 U.S.C. §230(c), was passed by Congress to address the harms associated with certain content and drafted to limit liability for “Good Samaritans” seeking to restrict such harmful content. It is entitled “Protection for ‘Good Samaritan’ blocking and screening of offensive material” and states in 230(c)(1) that: “[n]o provider or user of an interactive computer service shall be treated as the publisher or speaker of any information provided by another information content provider.” 47 U.S.C. §230(c) (emphasis added); see §§230(b)(4)-(5). Section 230(c)(2), entitled Civil liability, expressly states that providers or users may not be held liable for actions taken “to restrict access to or availability of material” or to provide others with the means to “restrict access” to material “that the provider or user considers to be obscene, lewd, lascivious, filthy, excessively violent, harassing, or otherwise objectionable, whether or not such material is constitutionally protected.” 47 U.S.C. § 230(c)(2)(A). Thus, the Communications Decency Act protects “Good Samaritans” seeking to limit the deluge of harmful content; it is no shield for Defendants’ own deliberate acts in designing, marketing, and operating social media platforms in ways designed to deluge youth with that same harmful content so as to maximize youth engagement and advertising dollars.

310. The Communications Decency Act provides immunity from liability only to: “(1) a provider or user of an interactive computer service; (2) whom a plaintiff seeks to treat, under a state law cause of action, as a publisher or speaker; and (3) of information provided by another information content provider.” *Barnes v. Yahoo!, Inc.*, 570 F.3d 1096, 1100-01 (9th Cir. 2009).

311. Publication generally involves traditional editorial functions, such as reviewing,

editing, and deciding whether to publish or to withdraw from publication third-party content. *Lemmon v. Snap, Inc.*, 995 F.3d 1085, 1091 (9th Cir. 2021).

312. Publication does not, however, include duties related to designing and marketing a social media platform.<sup>391</sup>

313. Plaintiff expressly disavows any claims or allegations that attempt to hold Defendants liable as the publisher or speaker of any information provided by third parties within the plain meaning of the statute and as interpreted by applicable law.

314. The Communications Decency Act does not immunize Defendants' conduct from liability because, among other considerations: (a) Defendants are liable for their own affirmative conduct in recommending, promoting, and amplifying harmful content to youth; (b) Defendants are liable for their own actions designing and marketing their social media platforms in a way that causes harm; (c) Defendants are liable for the content they create that causes harm; and (d) Defendants are liable for distributing, delivering, and/or transmitting material they know or have reason to know is harmful, unlawful, and/or tortious.

315. First, as already stated, Plaintiff is not alleging Defendants are liable for what third parties have said on Defendants' platforms but rather for Defendants' own conduct in amplifying and promoting the most harmful content in ways designed to be, and which are in fact, addictive to youth. As described above, Defendants affirmatively recommend and promote harmful content to youth, such as pro-anorexia, eating disorder, and other self-harm and violent content in ways designed to be addictive and result in excessive use. Recommendation, amplification, and promotion of damaging and harmful material to youth via means designed to be addictive is not a traditional editorial function, and seeking to hold Defendants liable for these actions is not seeking

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<sup>391</sup> *See Id.* at 1092-93.

to hold them liable as a mere publisher or speaker of third-party content. The content's existence on the platforms is not neutral, rather, Defendants amplify and promote the harmful content to youth because they have discerned that it maximizes user engagement and advertising revenue.

316. Second, Plaintiff's claims arise from Defendants' status as designers and marketers of dangerous social media platforms that have injured the health, comfort, and repose of its youth community. The nature of Defendants' platforms centers around Defendants' use of algorithms and other design features that encourage users to spend the maximum amount of time on their platforms.

317. Third, Defendants are liable for the content they create. In addition to content such as, for example, Snapchat filters, which promote body dysmorphia, Defendants send emails and notifications to youth including material they create, which often promotes and amplifies harmful content.

318. Fourth, Plaintiff does not seek to hold Defendants liable as mere publishers or speakers of information provided by other content providers; instead, Plaintiff seeks to hold Defendants liable for distributing material they know or should know is harmful or unlawful in ways designed to be addictive for youth. *See Malwarebytes, Inc. v. Enigma Software Grp. USA, LLC*, \_ U.S. \_\_, 141 S. Ct. 13 (2020) (statement of Justice Thomas respecting denial of certiorari discussing the distinction between distributor and publisher liability); *cf.* Restatement (Second) of Torts §581 (Am. L. Inst. 1977) (“[O]ne who only delivers or transmits defamatory matter published by a third person is subject to liability if, but only if, he knows or has reason to know of its defamatory character.”). Limiting youth exposure to such material and preventing stalking and harassment were expressly stated as purposes behind the statute:

It is the policy of the United States . . .

\* \* \*

(4) to remove disincentives for the development and utilization of blocking and filtering technologies that empower parents to *restrict their children's access to objectionable or inappropriate online material; and*

(5) to ensure vigorous enforcement of Federal criminal laws *to deter and punish trafficking in obscenity, stalking, and harassment by means of computer.*

47 U.S.C. §230(b)(4)-(5).

319. Plaintiff's claim is predicated on Defendants' conduct which has resulted in fueling the current youth mental health crisis so evident among Plaintiff's youth.

## VI. CAUSES OF ACTION

### Count I: Public Nuisance

320. Plaintiff incorporates paragraphs 1-319 as though set forth fully herein.

321. Plaintiff brings this claim under Maryland public nuisance law as to all Defendants.

322. Defendants have created a mental health crisis in Plaintiff's community, injuring the public health and safety in Plaintiff's community and interfering with the operations, use, and enjoyment of the property of Plaintiff's community. This condition has affected a considerable and substantial number of persons in Plaintiff's jurisdiction.

323. Employees, patrons, and residents of Plaintiff's community have a right to be free from conduct that endangers their health and safety. However, Defendants have engaged in conduct that endangers or injures the health and safety of the employees, patrons, and residents of Plaintiff's community by designing, marketing, and operating their respective social media sites for use by Plaintiff's residents in a manner that substantially interferes with the functions and operations of Plaintiff's community and impacts the public health, safety, and welfare of the Plaintiff's community.

324. Each Defendant has created or assisted in the creation of a condition that is injurious to the health and safety of Plaintiff and its employees, patrons, and residents and interferes with the comfortable enjoyment of life and property of them.

325. The health and safety of the members of Plaintiff's community, including those who use, have used, or will use Defendants' products, as well as those affected by others' use of their products, are matters of substantial public interest and of legitimate concern to Plaintiff.

326. Defendants' nuisance-creating conduct was intentional and unreasonable and/or violated statutes which established specific legal requirements for the protection of others. Defendants' conduct has affected and continues to affect a substantial number of people within Plaintiff's community and is likely to continue causing significant harm.

327. Defendants had control over their conduct in Plaintiff's community and that conduct had an adverse effect on the public right. Defendants had sufficient control over, and responsibility for, the public nuisance they created. Defendants were in control of the "instrumentality" of the nuisance, namely the operation of their social media sites, at all relevant times.

328. Defendants' ongoing conduct has directly caused a severe disruption of the public health, order, and safety in Plaintiff's public community. Defendants' conduct is ongoing and continues to produce permanent and long-lasting damage.

329. Defendants' conduct has created an ongoing, significant, unlawful, and unreasonable interference with rights common to the general public, including the public health, welfare, safety, peace, comfort, and convenience of Plaintiff's community.

330. This harm to youth mental health and the corresponding impacts to the public health, safety, and welfare of Plaintiff's community outweighs any social utility of Defendants' wrongful conduct.

331. The rights, interests, and inconvenience to Plaintiff's community far outweigh the rights, interests, and inconvenience to Defendants, who have profited tremendously from their wrongful conduct.

332. But for Defendants' actions, Plaintiff's youth community would not use social media sites as frequently or as long as they do today, would not be deluged with exploitative and harmful content to the same degree, and the public health crisis that currently exists as a result of Defendants' conduct would have been averted.

333. Logic, common sense, justice, policy, and precedent indicate Defendants' unfair and deceptive conduct has caused the damage and harm complained of herein. Defendants knew, or reasonably should have known, that their design, promotion, and operation of their products would cause youth to use their products excessively, that their marketing was designed to appeal to youth, and that their active efforts to increase youth use of their products were causing harm to youth and to the community as a whole.

334. Thus, the public nuisance caused by Defendants was reasonably foreseeable, including the financial and economic losses incurred by Plaintiff. Defendants know, and have known, that their intentional, unreasonable, negligent, and unlawful conduct will cause, and has caused, youth to become addicted to their social media products, which has a harmful effect on youth mental health.

335. Despite this knowledge, Defendants intentionally, negligently, unreasonably, and/or unlawfully marketed their products to adolescents and children, fueling the youth mental health crisis in Plaintiff's community.

336. Alternatively, Defendants' conduct was a substantial factor in bringing about the public nuisance even if a similar result would have occurred without it. By designing, marketing, promoting, and operating their products in a manner intended to maximize the time youth spend on their respective products, despite knowledge of the harms to youth from their wrongful conduct, Defendants directly facilitated the widespread, excessive, and habitual use of their products and the public nuisance affecting Plaintiff's community. By seeking to capitalize on their success by

refining their products to increase the time youth spend on their sites, Defendants directly contributed to the public health crisis and the public nuisance affecting Plaintiff's community.

337. Defendants' conduct is of a continuing nature and/or has produced a permanent or long-lasting effect, and, as Defendants know or have reason to know, have a significant effect upon the public right.

338. Defendants' intentional, negligent, and/or unreasonable nuisance-creating conduct, for which the gravity of the harm outweighs the utility of the conduct, includes:

- a. Designing, marketing, promoting, and/or operating their products in a manner intended to prioritize harmful content and maximize the time youth spend on their respective products, despite knowledge of the harms to youth from their wrongful conduct;
- b. Manipulating users to keep using or coming back to their products through the use of IVRs;
- c. Intentionally marketing their products to youths and adolescents, directly facilitating the widespread, excessive, and habitual use of their products among youth; and
- d. Knowingly designing and modifying their products in ways that promote excessive and problematic use in ways known to be harmful to children.

339. Defendants owed the public legal duties, including a preexisting duty not to expose Plaintiff's community to an unreasonable risk of harm and a duty to exercise reasonable and ordinary care and skill in accordance with the applicable standards of conduct in designing and marketing a product to youth and adolescents.

340. Each Defendants breached its duty to exercise the appropriate degree of care commensurate with marketing and promoting their products to youth.

341. Defendants' conduct is especially injurious to Plaintiff's community because, as a direct and proximate cause of Defendants' conduct creating or assisting in the creation of a public nuisance, Plaintiff and its residents have sustained and will continue to sustain substantial injuries.

342. Each Defendants is liable for creating the public nuisance because the intentional,

unreasonable, negligent, and/or unlawful conduct of each Defendants was a substantial factor in producing the public nuisance and harm to Plaintiff.

343. The nuisance created by Defendants' conduct is abatable.

344. Plaintiff has incurred expenditures and has had to take steps to mitigate the harm and disruption caused by Defendants' conduct, including the following:

- a. hiring additional personnel to address mental, emotional, and social health issues;
- b. establishing in-school and out-of-school mental health programs for youth;
- c. securing and outfitting space for the mental health programs for youth;
- d. developing additional resources to address mental, emotional, and social health issues;
- e. increasing training for teachers and staff to identify students exhibiting symptoms affecting their mental, emotional, and social health;
- f. training teachers, staff, and members of the community about the harms caused by Defendants' wrongful conduct;
- g. educating students about the dangers of using Defendants' products; and
- h. addressing property damaged as a result of youth acting out because of mental, social, and emotional problems Defendants' conduct is causing;

345. Fully abating the nuisance resulting from Defendants' conduct will require much more than these steps.

346. Plaintiff's community requests an order providing for abatement of the public nuisance that Defendants have created, or of which Defendants have assisted in the creation, and enjoining Defendants from future violations.

347. Plaintiff also seeks the maximum statutory and civil penalties permitted by law, including actual and compensatory damages, as a result of the public nuisance that Defendants have created, or of which Defendants have assisted in the creation.

348. Defendants are jointly and severally liable because they have acted in concert with

each other and because Plaintiff is not at fault.

**Count II: Negligence**

349. Plaintiff incorporates paragraphs 1-319 as though set forth fully herein.

350. Defendants owed the public legal duties, including a preexisting duty not to expose Plaintiff's youth to an unreasonable risk of harm and a duty to exercise reasonable and ordinary care and skill in accordance with the applicable standards of conduct in designing and marketing a product to youth and adolescents.

351. At all times relevant to this litigation, Defendants had a duty to exercise reasonable care in the design, marketing, promoting, and operating of their sites, including the duty to take all reasonable steps necessary to design, market, promote, and operate their sites in a way that was not unreasonably dangerous to youth.

352. At all times relevant to this litigation, Defendants knew or should have known of the dangers of Defendants' products and specifically, that their prioritization and creation of harmful content, and facilitation of widespread, excessive, and habitual use of their products by youth, resulted in and continues to result in significant harm to Plaintiff. As such, Defendants have breached their duty of care owed to Plaintiff. Defendants have breached and continue to breach to their duty of care owed to Plaintiff through their actions, business decisions, and policies in the development, setup, management, maintenance, operation, marketing, advertising, promotion, supervision, and control of their respective products.

353. Defendants' negligence includes:

- a. Designing, marketing, promoting, and/or operating their product in a manner intended to prioritize and create harmful content and maximize the time youth spend on their respective products, despite knowledge of the harms to youth from their wrongful conduct;
- b. Manipulating users to keep using or coming back to their products through the use of IVRs;

- c. Intentionally marketing their products to youths and adolescents, directly facilitating the widespread, excessive, and habitual use of their products among youth; and
- d. Knowingly designing and modifying their products in ways that promote excessive and problematic use in ways known to be harmful to children.

354. Defendants knew and/or should have known that it was foreseeable that Plaintiff would suffer injuries as a result of Defendants' failure to exercise ordinary care in the designing, marketing, promoting, and/or operating of their sites, particularly when Defendants targeted youth in Plaintiff's community.

355. As a direct and proximate cause of Defendants' unreasonable and negligent conduct, Plaintiff has suffered and will continue to suffer harm.

356. Defendants are jointly and severally liable because they have acted in concert with each other and because Plaintiff is not at fault.

### **Count III: Gross Negligence**

357. Plaintiff incorporates paragraphs 1-319 as though set forth fully herein.

358. Defendants owed the public legal duties, including a preexisting duty not to expose Plaintiff's youth to an unreasonable risk of harm, and a duty to exercise reasonable and ordinary care and skill in accordance with the applicable standards of conduct in design, marketing, promoting, and operating their sites.

359. At all relevant times to this litigation, Defendants had a duty to exercise reasonable care in the design, marketing, promoting, and operating of their sites, including the duty to take all reasonable steps necessary to design, market, promote, and operate their products in a way that was not unreasonably dangerous to youth.

360. At all times relevant to this litigation, Defendants knew or should have known of the dangers of Defendants' products and specifically, that their prioritization and creation of

harmful content, and facilitation of widespread, excessive, and habitual use of their products by youth, resulted in and continues to result in significant harm to Plaintiff. As such, Defendants have breached their duty of care owed to Plaintiff.

361. Defendants have breached and continue to breach to their duty of care owed to Plaintiff through their actions, business decisions, and policies in the development, setup, management, maintenance, operation, marketing, advertising, promotion, supervision, and control of their respective sites.

362. Defendants conduct was so reckless or wanting in care that it constitutes a conscious disregard or indifference to the life, safety, or rights of persons exposed to such conduct, including youth in Plaintiff's schools, in that they acted with reckless indifference to the results, or to the rights or safety of others because Defendants knew, or a reasonable person or company in Defendants' position should have known, that Defendants' conduct created an unreasonable risk of harm, and the risk was so great that it was highly probable that harm would result. Defendants' gross negligence caused Plaintiff to suffer harm.

363. The gross negligence of Defendants includes, but is not limited to, the following:

- a. Designing, marketing, promoting, and/or operating their product in a manner intended to prioritize and create harmful content and maximize the time youth spend on their respective products, despite knowledge of the harms to youth from their wrongful conduct;
- b. Manipulating users to keep using or coming back to their products through the use of IVRs;
- c. Intentionally marketing their products to youths and adolescents, directly facilitating the widespread, excessive, and habitual use of their products among youth; and
- d. Knowingly designing and modifying their products in ways that promote excessive and problematic use in ways known to be harmful to children.

364. Defendants knew and/or should have known that it was foreseeable that Plaintiff would suffer injuries as a result of Defendants' failure to exercise ordinary care in the designing,

marketing, promoting, and/or operating of their sites, particularly when Defendants targeted youth in Plaintiff's community.

365. As a direct and proximate cause of Defendants' grossly negligent conduct, Plaintiff has suffered and will continue to suffer harm.

366. Defendants' willful, knowing, and reckless conduct therefore warrants an award of aggravated or punitive damages.

367. Defendants are jointly and severally liable because they have acted in concert with each other and because Plaintiff is not at fault.

## **VII. PRAYER FOR RELIEF**

WHEREFORE, Plaintiff prays for judgment as follows:

A. Enter an order on Count I against the Defendants that their conduct alleged herein constitutes a public nuisance under Maryland law;

B. Enter an order on Count II against the Defendants that their conduct alleged herein constitutes negligence under Maryland law;

C. Enter an order on County III against the Defendants that their conduct alleged herein constitutes gross negligence under Maryland law;

D. Enter an order that Defendants are jointly and severally liable on Counts I, II, and III;

E. Enter an order requiring Defendants to abate the public nuisance described herein and to deter and/or prevent the resumption of such nuisance;

F. Enjoin Defendants and any agents, successors, assigns, and employees acting directly or through any corporate or business device from engaging in further actions causing or contributing to the public nuisance as described herein;

G. Enjoin Defendants from further violations of the COPPA and directing that

Defendants take affirmative steps to obtain “verifiable parental consent” prior to collecting and using information about them;

H. Award Plaintiff damages to fund prevention, education, and treatment for excessive and problematic use of social media;

I. Award Plaintiff actual and compensatory damages on Counts I, II, and III;

J. Award Plaintiff punitive damages;

K. Award Plaintiff reasonable attorneys’ fees and costs of suit;

L. Award Plaintiffs pre-judgment and post-judgment interest; and

M. Grant Plaintiff such other and further relief as the Court deems just and proper under the circumstances.

Dated: June 26, 2023

Respectfully submitted,

MONTGOMERY COUNTY, MARYLAND

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/s/

Amy Keller, Fed Bar No. 0020816  
**DICELLO LEVITT LLP**  
Ten North Dearborn Street  
Sixth Floor  
Chicago, Illinois 60602  
P: (312) 214-7900  
akeller@dicellolevitt.com

\_\_\_\_\_  
/s/

John P. Markovs Fed. Bar No. 07599  
County Attorney  
101 Monroe Street, Third Floor  
Rockville, MD 20850  
P: (240) 777-6700  
john.markovs@montgomerycountymd.gov

\_\_\_\_\_  
/s/

Megan B. Greene, Fed. Bar No. 0029832  
Associate County Attorney  
101 Monroe Street, Third Floor  
Rockville, MD 20850

P: (240) 777-6700  
megan.greene@montgomerycountymd.gov

Diandra Debrosse Zimmermann  
(AL 0002956-N76D)\*  
**DiCELLO LEVITT LLP**  
505 20<sup>th</sup> North Street 15<sup>th</sup> Floor  
Birmingham, Alabama 35203  
P: (205) 855-5700  
fu@dicellolevitt.com

Roxana Pierce (DC 0485282)\*  
**DiCELLO LEVITT LLP**  
4747 Executive Drive Suite 240  
San Diego, California 92121  
P: (619) 923-3939  
rpierce@dicellolevitt.com

Mark Abramowitz (OH 0088145)\*  
Nicholas M. Horattas (OH 0102534)\*  
**DiCELLO LEVITT LLP**  
8160 Norton Parkway  
Third Floor  
Mentor, Ohio 44060  
P: (440) 953-8888  
mabramowitz@dicellolevitt.com  
nhorattas@dicellolevitt.com

*\*Pro Hac Vice Forthcoming*

